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The Communication of Ideas as a Professional Responsibility of the Physical Therapist — HELLEBRANDT

Teaching-Training Principles for the "Hopeless" Cerebral Palsy Patient — HIPPS

Preprosthetic Exercises for Upper Extremity Amputees — REILLY

The Graduate Program in Physical Therapy — HEWITT

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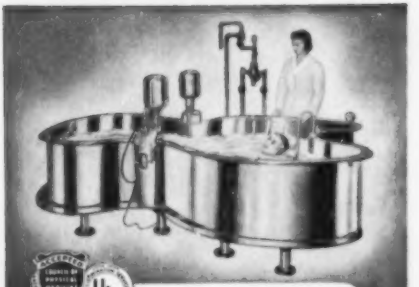

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The Physical Therapy Review

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The Communication of Ideas as a Professional Responsibility of the Physical Therapist

F. A. Hellebrandt, M.D.

At some indeterminate point in recent years American physical therapy shed the last remnant of its aura of vocationalism and emerged as a profession. Curriculum planning shifted first from on-the-job apprenticeship training to more formal technical education, and then to a steadily increasing emphasis on the basic and medical sciences. Today students of physical therapy are concerned less with rote learning of the *"how"* of technical skills than the *"why"* of steps in procedure. The exploitation of trainees for service purposes in exchange for the opportunity of mastering the routines of a vocation has virtually disappeared. The hospital or clinic school, staffed by service personnel, is being superceded gradually by collegiate-type courses leading to the baccalaureate degree. Admission requirements to schools of physical therapy are higher today than at any point in the brief history of American education in physical therapy, largely because of a self-imposed elevation of standards. Exploratory use of the General Education Index of the Graduate Record Examination at the Medical College of Virginia over a period of four years suggests that increasing numbers of students of high intellectual attainment are being attracted to the profession. To keep pace with the trend toward intellectualism, physical therapy education has become a specialty in itself, supported by graduate study, and recognized by the granting of academic rank to professional teachers affiliated with training school programs.

To pursue the *"why"* to the exclusion of the *"how"* would obviously defeat the objectives of a profession concerned primarily with the science and art of alleviating human suffering and disability through the application of physical agents; but only to seek an answer to the question, *"how,"* is to be a technician. There is perhaps no better criterion of self-appraisal than examination into the frequency with which the challenge of the *"why"* is met by serious and persistent study. Skepticism is the most distinguishing characteristic of the educated individual, and the urge to be shown, the best safeguard against retention of obsolescent information pertaining to a rapidly advancing field of medical practice in which there is still much that cannot be considered stable and valid knowledge. He who enters the profession of physical therapy without realizing that it must contribute to the search

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for truth, *in its own right*, is unfit to meet the responsibilities of the future.

Scholarship is one of the attributes which differentiates the members of a profession from those who pursue a craft or a trade. The professional worker adds to human knowledge in the area of his specialty. A number of American physical therapists, the Kendalls for example, have made authoritative contributions to the technical and theoretical aspects of physical medicine and rehabilitation, and recent years have witnessed the assimilation of others as collaborating members of research teams. The preprofessional scientific preparation and subsequent undergraduate and advanced professional training of present day physical therapists is now such that the best among these enter the field appreciative of the intellectual challenge inherent in the practice of a rational physical therapy. Being in day-by-day contact with the patient, the conscientious and well-informed worker has an unparalleled opportunity to test the strength of innumerable technical concepts. This does not mean, of course, that the physical therapist is qualified to practice any branch of the healing art, no matter how limited, without appropriate medical supervision. It does suggest, however, that the fully qualified physical therapist is fast assuming a stature which carries with it increasing responsibilities in the evolution of those aspects of physical medicine and rehabilitation which impinge on the *technics utilized* in attaining the prescribed medical objectives of treatment.

The physical therapy trainee of today acquires a rich store of basic knowledge in addition to competence in technical skills. He knows how to consult, evaluate, and use the current literature. He reads intelligently. In some training centers he is being taught how to correlate facts, reason correctly, and think independently. All this makes a subtle difference in his professional status. It has led him to expect the privileges of full membership on the team of experts now being used to achieve maximal restoration of the sick and disabled. Indeed, the physical therapist of today is being educated to function as a contributing associate of the physician who guides and integrates the activities of the rehabilitation team. If this is not the intent of those who set curriculum objectives, training school admission standards and course demands should be subjected to prompt and radical down-grading. The experience of the War demonstrated that surprisingly good corpsmen and technicians could be produced in a few weeks without benefit of a preliminary higher education when the stress of manpower shortages made utilitarianism necessary to survival. The path into the future will be smoother if this is not forgotten. In the interim, it would be well to consider further the responsibilities and obligations that go hand-in-glove with the attainment of professional status.

Anyone with understanding who has had close contact with physical therapists must have been struck by the acumen with which they sometimes note responses to the application of physical agents. They discover improved ways of accomplishing specific rehabilitation goals and improvise the equipment demanded for individualization of treatment. Some of these contributions may indeed be additions to human knowledge. Is it enough to have done these things in the interests of the sick and disabled coming under the influence of a single physical therapist or an isolated treatment center? A master craftsman adds many a trick to the basic skills acquired as an apprentice. The experimental scientist, the engineer, or the teacher, elucidates the *"why,"* and having gathered up demonstrable evidence in support of his thesis, makes his deductions known to all who might profit from the lessons learned in that scrimmage on the frontiers of human knowledge. Such is the habit of mind of the professional worker in contrast with that of he who follows a trade as a vocation.

Characteristic of the age in which we live is the voluntary federation of men of like interests into specialty groups, clubs, unions, or societies. Important among the many reasons why professional associations exist is the fact that they provide channels for that exchange of ideas without which growth would be impossible or seriously hampered. The route taken for the communication of ideas may be oral, audio-visual, or written. In other words, the contributions of professional men and women are transmitted customarily through the reading or writing of papers, or the presentation of static or living exhibits. As a matter of fact, the majority of the papers appearing in society-sponsored journals are works read at the last annual meeting of the supporting professional group. It may be timely, therefore, to reconsider the adequacy of the provisions sanctioned by custom for the exchange of ideas through oral communication at the annual sessions of the American Physical Therapy Association. If insufficient channels exist, open alike to all members, this feedline for the official journal of the Association should be installed at the earliest possible moment. It is interesting to speculate as to what would happen if 10 percent of the Association's membership, or even one in a hundred, accepted the challenge of preparing and reading a formal paper as an

annual professional obligation. Refresher courses and instruction seminars are admirable convention devices, but they should never be allowed to take the place of original contributions made by physical therapists from the stuff of their individual experience and independent thinking. This is not unlike the view expressed by Dr. Harry M. Hines in his provocative message to the last annual session of the Association published in the February issue of the *Review*.

The first step in the technic of scientific writing is delimitation of the problem to be presented. This is done usually in two different ways; first, by giving the study a brief but accurate and inclusive title, and second, by preparing a preliminary outline of its framework. In accomplishing the latter, it is helpful to ask several simple questions. *What do I propose to discuss? Why do I think it deserves discussion? Do I have the evidence necessary to support the views to be presented?* If the answers to the first two questions are forthcoming, and the facts required for their elaboration are at hand, the preparation of a paper to be read or written for publication offers no serious problems. Achieving this is not necessarily easy. It may be very difficult. It is almost always decidedly time consuming. The important point is that the obstacles are not insurmountable. The beginner usually fails because in his eagerness to present what he thinks to be new, he has by-passed the acquiring of that background of knowledge and experience necessary to answer the three questions asked with appropriate perspective. This need not be an all-inclusive perspective. A reasonably good perspective will do, and this varies with the knowledge and experience of the audience to be addressed, either orally or through the medium of a periodical publication. Two aphorisms will allay the uncertainty of the reader with serious aspirations in the realm of communication: "time is without end," and, "knowledge is power."

There is no doubt, as Dr. Hines suggests, that many physical therapists have the capacities required to master the disciplines of the scientific method. These disciplines include four obligations —first, to observe accurately; second, to record what is observed systematically; third, to weigh evidence critically; and fourth, to draw conclusions without prejudice in the light of the really important facts. As Dr. Hines implies, this does not mean that research is synonymous with laboratory experimentation, nor is it necessarily dependent upon complex and costly instrumentation and the use of mathematical technics for the evaluation of evidence. These are the embellishments, not the heart of research, as the history of science tells. They make it easier to observe, record, and interpret precisely, but no device created by man can unfold the meaning inherent in that which is observed. This depends wholly on the ability of the observer to think intelligently to a clearly defined end.

The renaissance which has characterized recent physical therapy stems primarily from more fundamental efforts to establish the basis of empirical procedures. No one is in a better position to estimate their clinical validity than the physical therapist. *Do the treatments prescribed have the effects expected, and to what extent are they discernible? Are the results achieved modifiable by varying the technic of application within the discretionary limits allowed those who practice an art?* These are questions put by every alert physical therapist interested in the welfare of the patient. To make an organized, ordered, informed attack in seeking an answer, transforms haphazard awareness into disciplined research. It is no more complex than that. The secret resides in the attitude of mind of the observer. This determines the lengths to which he is willing to go to get a personally satisfying answer, and the constancy of his pursuit of that which is unknown. It is impossible to overemphasize the intellectual stimulation which might come from the oral presentation and open discussion of experiences of this type.

Important as scientific research is to the future of the profession, it can hardly be expected to attract the attention of more than a relatively small number of physical therapists. Chief among these will be graduate students, research fellows, and service personnel affiliated with teaching hospitals and clinics. They are, however, no more entitled to a hearing than the physical therapist who would like to present any one of the following subjects: an instructive series of case histories, the floor plans of a newly erected cerebral palsy treatment center, a rehabilitation gadget that works, visual aids for home treatment programs, thumb-nail sketches of living personalities important to physical therapy, supervision problems and how to cope with them more effectively, conservation of materials and supplies, the causes of equipment breakdowns and how to prevent them, methods of effective in-service training, paper work and how to reduce it, ten-year review of departmental statistics, transporting the disabled, end-result statistics on two hundred fracture patients referred to the physical therapy department, employment policies, summary of recent advances in electrotherapy, etc., etc. Examine the program of the annual session of a sister society like the American Associa-

tion of Health, Physical Education and Recreation. It is studded with a bewildering number of section meetings assigned to the discussion of delimited areas of the total field. When the same concept is applied to physical therapy at least ten sections come immediately to mind: research, education, supervision, departmental management, technics, new devices, personnel policies and problems, cerebral palsy, poliomyelitis, and general rehabilitation.

If the physical therapist knows what he wants to discuss and why, and has carefully and patiently gathered the necessary information, he can turn to any one of several monographs for guidance in the details of manuscript preparation. These are skills that must be learned either through the deliberate study of specific technics, like graphing or statistical methodology, or by the intelligent and critical analysis of papers encountered in a wide reading of the current literature. A wise and helpful editorial board can render an inestimable service to the beginner. So can the physician with whom the physical therapist is associated.

The physical therapist is a member of a profession to which he owes allegiance. He is also a private citizen. What he writes and says reflects not only upon him, but also upon his profession, and, especially, upon the physical therapy department with which he is affiliated. This gives rise to ethical considerations that touch upon his freedom. For most physical therapists it would be a gravely discourteous error in judgment to submit a paper for publication or oral presentation carrying the by-line of a department without obtaining the prior approval of the responsible physician.

To add to human knowledge in the areas suggested in this paper is a professional obligation of every physical therapist. In contemplating ways of implementing this objective, "The Huntarian, *'Do not think, but try,'* attitude of mind is the important one to cultivate," as Osler said in his essay titled *The Student Life*. Has the Association been so preoccupied with the strategies and battles of the fight for standards and recognition that insufficient energy has remained to nurture the creative capacities of those in the ranks who are sufficiently well endowed, intellectually and personally, to add luster to the profession if given the opportunities necessary for growth? The following illustrates, in an interesting way, the inestimable value of the channel of communication offered by participating membership in a professional association. It is an excerpt from a short essay written as an introduction to a bibliography of Simon Baruch's published works prepared in honor of his one hundred and tenth birthday and issued as a Special Bulletin of the Baruch Center.

"Baruch was clearly a clinician, not an experimental investigator. Although he seemed always to appreciate the importance of laboratory research, he himself arrived at an answer to the many questions propounded by his inquisitive mind in three or four different ways which again illustrate that peculiar mixture of the practical and the academic which runs through the fabric of his thinking. First, he seems to have been an acute observer and to have taken the trouble to keep accurate notes on his clinical cases. Second, he was in the habit of subjecting his practices to periodic self-evaluation. Third, having arrived at a decision, he put his deductions to the test, not in the laboratory, but through the further study of subsequent clinical cases. Finally, he considered the dissemination of the results of such study to be a professional obligation of prepotent importance. At the age of thirty-four he said with all the visionary intensity of youth, '. . . every practitioner who has gathered much experience, and has enjoyed opportunities for much observation, must, of necessity, have drawn inferences and instituted modes of practice, differing from those ordinarily in vogue. It is an obligation which devolves upon him, by virtue of his calling, to contribute to the general stock of knowledge such facts and deductions as have resulted from his reasoning on his cases. . . . Life is indeed short; it is a dream upon earth. As shadows that float upon the waves, we pass away; we measure our lazy steps by space and time, and find ourselves, ere we realize it, in the midst of eternity. . . . Is it not our bounden duty to offer these to the test of discussion, to be confirmed as sound deductions and guides for the future? Now, while we are still permitted to uphold our views by personal defense, we must present them, lest, when our voices are hushed, we may be misrepresented by our own facts. . . . Let us not be silent, but offer our facts, and defend them while we may. . . . Experience is fallacious; judgment difficult. Our experience, here presented, must, therefore, be sifted and cast into the crucible of truth.'"

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7. Garrett, Henry E.: Statistics in Psychology and Education, third edition, Longmans, Green and Co., New York, 1950.

8. Schmitz, R. Morel: Preparing the Research Paper. A Handbook for Undergraduates, Richard R. Smith, New York, 1931. (Especially the procedure for gathering and arranging material.) This useful Handbook ends with "Ten Commandments for Undergraduate Writers" quoted here in part:

"I. When thy task is before thee wait not until the near approach of the day of doom before putting thy good intentions to work; for the day of judgment creepeth up swiftly, as a thief in the night, to snatch thy good intentions from thee before thou canst make use of them.

"II. Doubt as a scientist doubts whatever thou seest or readest in thy search, examining all with the critical eye of an intelligent person, lest thy peers discover thee a gullible fellow—a discovery which will give little joy in thyself or thy mental prowess.

"III. Distinguish between that which is proof and that which is merely concurrence of opinion. A generalization is proved only when facts have been adduced to support it. An unsupported statement of opinion by a second rate authority doth not constitute proof. . . .

"IV. Thou shalt be exact. . . . And when thou dost quote, thou must do so exactly; and when thou dost merely record a fact or an opinion thou must do so exactly.

"V. Thou shalt not take a back seat in thy discussion. Thou shalt not use in the text of thy theme any quotation without giving it an adequate introduction; . . . In other words, thou shalt not allow thy theme to degenerate into a patchwork of quotations or paraphrased opinions in which thou takest a back seat and allowest other writers to carry on thy discussion for thee. . . . And that thou mayest still better adhere to this ideal, thou shalt quote as little as possible, preferring rather to digest the material with thy own mind and transmute it into thy own words wherever possible.

"VI. Thou shalt be graceful in thy handling of sources. Thou shalt not poorly set in the material of thy sources; in other words thou shalt know enough of the setting of a quotation or of a fact in its original location to enable thee to use it with grace and precision. . . .

"VII. Unless thy use of it be very general, thou shalt not use in thy theme any information for which thou hast a note-card without footnoting the same. . . .

"VIII. Thou shalt indicate the relevance of thy sources. . . .

"IX. Thou shalt follow, even to the last comma, the mechanics of composition . . . as set forth in this pamphlet.

"X. Before thou handest in thy paper ask thyself whether thou canst answer "yea" to the following questions: Has the paper been composed intelligently and written gracefully? Is the paper properly endorsed? Are the outline, the text, and the bibliography properly arranged? Is the text legible, and the appearance of the paper likely to impress the reader in your favor? **Canst thou answer "yea" to these questions, then thy work has been well done. Then the day of judgment will hold no terrors for thee."**

Teaching-Training Principles for the "Hopeless" Cerebral Palsy Patient

Herbert E. Hipps, M.D., F.A.C.S.

The "hopeless" cerebral palsy patient is one who cannot hold his head up, sit alone, stand, walk, talk, use his hands, or control his bladder and bowels, and he usually cannot chew. Surgery, medicine, and the usual therapeutic activities that are of benefit to most cerebral palsy patients do no good whatever in the treatment of these severely involved individuals. All of our therapeutic activities for them are necessarily teaching and training ones.

Who knows better than the teacher how to teach? Who knows better than the psychologist how the mind learns?

It was, therefore, to these professions that we went for help, and from them we have gleaned the following facts, which, when applied to the teaching and training of these "hopeless" patients has enabled us to get much better results than we have ever been able to get before.

Normal children learn basically in the following ways:

(1) By imitation
(2) By trial and error
(3) By repetitious efforts
(4) Sometimes, by reason or insight

The cerebral palsied child also learns fundamentally in exactly the same way. He is human, just as you and I, and the damage to his brain has not changed him from a human being into a strange esoteric animalism whose basic methods of learning differ from our own. In teaching or training them, we must, therefore, keep constantly in mind these basic routes of learning and use them.

The normal child goes through several distinct stages of learning. We must take the cerebral palsy child through these same stages, exactly in the same route that the normal child follows. Otherwise, a lot of time and effort is wasted. For example, a normal child cannot learn to walk until first he can stand or sit alone. He cannot sit alone until first he can balance his head. Effort spent in trying to teach a child to walk, who cannot sit alone or hold his head erect, is therefore wasted.

The psychologist states, "The results of experiment indicate that, although training can speed the growth of learning, it cannot transcend the limits imposed by the stage of maturation that the individual has obtained." (*Psychology and Life* by F. L. Ruch)

The many scientific experiments that formed the basis for this statement also form the scientific basis for the following division of our teaching-training activities into separate stages, corresponding to the stages of maturation the child is in. These stages are as follows:

(1) Learning head balance (preliminary activities leading up to and including head balance)
(2) Learning sitting balance (and in this stage he begins to learn speech and use of hands)
(3) Learning standing balance (becomes increasingly more adept at all previous activities)
(4) Learning walking

We must, therefore, in teaching these children, follow these same stages of development that are followed by a normal child. This means that we must teach the child, first of all, to hold his head up, and when he has learned this and learned it well, then we can teach him to sit alone, and while he is learning to sit alone, we can teach him to talk and to use his hands. Only after he has learned to sit alone and do this well, can we teach him to stand, and then finally to walk. We stress, therefore, as a teaching principle, that *the child's training problems must be kept always within his stage of maturation.*

The psychologists also state that in teaching we must, "make the goal attainable." This can be done easily by keeping the activities which we are teaching the child within the stage of maturation he has obtained. Simple elementary movements and control must precede more complicated ones.

Experiments indicate that an individual "learns best by doing," by trying to do that which is re-

Crippled Children's Hospital, Waco, Tex.

quired of him. The individual learns better directly, not indirectly. The psychologist says, "Learn by doing." He also states, "The learner, for best results, must actually work with the real materials that he is trying to learn to deal with."

As applied to the cerebral palsy child, this means that if we want the child to learn how to feed himself a cookie, we do not give him a peg board to play with. We do not massage the arms, and move the arms back and forth while singing a rhyme to him, or do other similar indirect training activities. We give him a cookie and we show him how to place it in his mouth, so that by imitation and by repetitious efforts, and by trial and error, he can learn to pick up that cookie and put it in his mouth. He is learning best by doing.

Teach directly, not indirectly.

Ruch also states, "Sucking in the human infant affords an excellent example of how the human organism does one main thing at a time." Excessive body and extremity movements in an infant cease when he begins sucking. Experiments and repeated observations over a period of many years have indicated the truth of this statement. There is no doctor who cannot remember the patient who is undressing and from whom the doctor is trying to elicit a history at the same time. If the patient stops to tell the doctor about something, then he quits taking off his shirt. If he starts taking off his shirt, he stops talking to the doctor. Unless an individual has had special prolonged training to enable him to do several things at one time, then that individual normally will do mainly one thing at a time. That observation, which is scientifically sound and true, forms the basis for our contention that we should *teach the cerebral palsy child only one thing at a time.*

According to Ruch ". . . forgetting comes partly because of the influence of the learning of other material after the original material has been learned." Forgetting is not "passive decay."

If an individual learns something and forgets it, then he really has not learned it. We must eliminate, therefore, from the cerebral palsy child, as much of the forgetting as is possible.

The law of recency in learning (this takes into consideration forgetting) affirms that, ". . . other things being equal, whatever it is that makes for learning is more effective when recent."

If we teach the child to hold his head up in the morning, and then later on in the day we teach him to use his hands, and then later on to use his feet and legs, in performing certain movements, and then later on to try to stand and walk, we are placing a multiplicity of impressions in that child's mind. Each succeeding one that we try to teach him during the day blocks out the previous impression, and makes the child forget the previous one. Therefore, by the end of the day the child has learned little, or nothing at all.

We should, therefore, *concentrate on one thing at a time,* so that the impressions learned in the morning will be more deeply impressed during the day by continuing to do that one thing at a time, and additional impressions will not be placed on his mind to wipe out that impression we are desirous of the child learning. This is another sound, scientific reason why we stress that the child learn one thing at a time.

The psychologist states, "If practice periods are placed too far apart—the total schedule will not be an efficient one." He also states, "Problem-solving learning depends on persistent attack on the problem. . . ."

This means that we must *make the child work all the time.* He should spend as much time as is humanly possible on the one problem assigned to him. If the child spends an hour in the morning working on head balance, or the use of his hands, or some other of the activities which we desire to have the child learn, and the rest of the day he does nothing but lie in bed and look at the ceiling, then that child is not going to learn very fast. He must attack the problem persistently. He must work all day long, stopping only for those necessary rest intervals.

The law of frequency in learning, as discussed by educators, is epitomized as follows, ". . . learning is proportional to the frequency with which the learning factors are made operative." This is simply another way of stating that the child must try and try, again and again, to do the one thing required of him. He must work repeatedly for many long hours on his problem.

These children learn so very slowly, anyway, that much more time is required for them than for a normal child to learn one thing, and if persistent attack on the problem is good advice for the normal child, then how much more necessary is it that the cerebral palsy child follow this advice.

Ruch states that, "the more immediately reward or punishment follows attempts at learning, the faster will be the progress of learning." This means that when the child accomplishes, even momentarily, a desired activity, he should immediately be praised or rewarded, so that he will associate praise or a reward, which he likes, with the accomplishment of that activity, and thus he will strive harder to do it again.

"Numerous studies by psychologists have shown that people tend to forget unpleasant facts faster

than they forget pleasant ones." This is why the child should be praised or rewarded for his efforts rather than be punished for failure to accomplish or failure to try to accomplish his problem.

"Meaningful material is easier to learn than the same number of nonsense units." The obvious implication is that the child will learn more easily and remember longer activities that make sense to him. We must explain to the child why we want him to use his hands to feed himself, why we want him to sit alone. Tell him to learn this so he can sit alone like his mother, so he will be like other children, so he can do what others do, etc. He will understand, and *the exercise then becomes meaningful to him and he will work all the harder.* Don't assume that the child has no mental power and cannot understand you. By far the larger percentage of them can do so if you talk simply, clearly, and sensibly to them.

Educators emphasize that, ". . . the individual must be ready to learn before he can learn. The learning tasks must be satisfying to him, not annoying to him. . . ." If you can explain to the child the reason for and the meaning of his exercises then those exercises become satisfying to him. Praise when he tries it or accomplishes it is further satisfying to him and he thereby learns all the better.

"Motivation is essential to produce the vigorous exploration which is indispensable in many learning situations." This, likewise, is an important reason for telling the child why he is to learn some one thing. It gives him a motive for learning. The importance of motivation has been noted, ". . . one of the outstanding contributions of modern psychology to education has been the greater emphasis on motivation in learning." The desire for approval, or inner urges like hunger and thirst, can serve as powerful motives and they should be used. ". . . the desire for social approval of an audience can improve memory." ". . . the desire to impress one's social group and to receive their approval is one of the most fundamental human motives." This must be kept always in mind in explaining to the patient why he is to perform the exercise required of him. It gives him *a strong motive which is so essential to effective learning.*

Experiments in education carried on during the recent world war indicate that small groups of individuals learn better and faster than large groups. In treating the "hopeless" cerebral palsy patient this is particularly important. By far the best results are obtained when each child forms a class by himself, when he is taught individually, and this can be done best by his mother. Naturally, supervision of the treatment aims is necessary, by the physician and physical therapist, so that the mother can know what to teach her child at his particular stage of development and maturation.

Mental Development Must Parallel Physical Development

Mental development usually does occur with progressive physical development. The infant sees only his parents and the ceiling above, but as he becomes able to hold his head erect and sit alone, his visual horizon increases, thus promoting mental development. As he begins to crawl he not only sees new objects, he touches and plays with them, and these new experiences promote additional mental growth. Thus mental development and physical development in the normal child proceed together, each largely dependent on the other for continual growth. So must it be in the teaching and training of those severely involved individuals. We must see to it that mental development parallels physical development.

Some methods of treatment in vogue today largely forget this. Passive movement of a child's arms or legs does not develop the child's mind, but active movement or even assisted active movement does do so when the child is given a motive for performing it. He touches a toy that tinkles; this is an experience that delights him and impresses his mind and the mind develops thereby along with his body, as he tries to touch the toy again and again.

Conditioned responses, as usually employed in these patients, have a limited degree of value because mental development cannot occur so well with them. Time spent in conditioning leg and arm movements to respond to a song stimulus would be better spent by setting for the child an attainable goal that is well within his stage of maturation and having him actively and persistently attack that problem.

And remember always that he learns any problem or exercise assigned him by imitation, by trial and error, and by repetitious efforts.

Summary

These general teaching-training principles as discussed are sound ones, are based on proven scientific facts, and if followed accurately will improve your results on these individuals.

They are as follows:

(1) Keep the child's activities and problems always within the stage of maturation he has obtained.

(2) Teach him directly, not indirectly.

(3) Concentrate on one activity or problem at a time.

(4) Have the child spend all the available time possible every day attacking the one problem assigned to him.

(5) Make his exercise or problem meaningful to him.

(6) Give him a motive for every exercise.

(7) Teach small classes, or supervise individual teaching by mother.

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Preprosthetic Exercises for Upper Extremity Amputees

With Special Reference to Cineplasty

Genevieve V. Reilly

The provision of a prosthesis alone is no solution to the problems of the upper extremity amputee. Briefing the patient on the steps in his rehabilitation helps him understand the process of adjustment. He requires the emotional support of visual aids and demonstrations by others with similar or more severe disabilities. Psychological preparation is a very important consideration in rehabilitating amputees.

Well-planned surgery is necessary. There are amputations which are considered classical in their so-called sites of election. The site of election for the above-elbow amputation is at the junction of the lower and middle third of the humerus. The below-elbow site is within the middle third of the shafts of radius and ulna. These areas are generally considered to be most favorable for prosthetic appliances.

The amputee's age, mental level, and vocational potentialities are considered in the selection of a prosthetic appliance. It is well to remember that the more simple the appliance is in construction the less repair is required.

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Let us consider one ramification of the rehabilitation of the arm amputee; that is, preprosthetic training and its implications.

Mommsen pointed out that the center of gravity of a mass is affected by loss of a part, or by carrying additional weight on the shoulders. Braune and Fischer determined that the arm weighed 6.48 percent of the total body weight, of which the upper part was 3.36 percent, and the lower arm and hand, 3.12 percent. Therefore, it would seem that the loss of weight of an arm would also force a change in the center of gravity of a subject. If the subject is a unilateral above-elbow amputee, there is usually a curvature of the spine that is evident from atrophy of muscles of the shoulder girdle, and probably due to disuse and change of the center of gravity. *(See Figure 1.)* This should be considered in encouraging good postural habits in the amputee. Mat exercises are advised, in prone lying position for back extension including neck muscles and with arm stretching overhead. Abdominal and lateral abdominal exercises can be given in the supine position. *(See Figure 2.)*

Figure 1.

It is important to note that after 50 degrees of abduction, or 60 degrees of forward flexion has been reached in the glenohumeral joint, the relationship is 10 degrees at the glenohumeral joint to every 5 degrees by rotation of the scapula on the thorax, and the total movement is simultaneous and not successive. This should be considered in formulating exercises for the shoulders and arms. Both scapulae should be freely movable. Some prosthetic devices depend upon depressing and advancing the scapula on the thorax to initiate a pull on the harness (by one or the other shoulder girdle) to flex the prosthetic elbow. Figure 3 shows this type of harness.

The glenohumeral articulation is surrounded by a capsule and ligaments. In above-elbow amputees there are four important muscles not severed which surround this capsule; the supraspinatus, infraspinatus, teres minor, and subscapularis. They should be strong enough to retain the head of the humerus in the socket, and to carry the weight of the prosthetic appliance.

The long head of the biceps originates in the supraglenoid cavity and is continuous with a glenoid labrum; it crosses the head of the humerus and emerges from the joint capsule between the tuberosities of the humerus. This tendon helps to stabilize the shoulder joint in the normal individual, but in the above-elbow amputee it is severed.

The triceps is a two-joint muscle which is also severed. These muscles attach themselves to the ends of bone or to the surrounding fascia. In the latter instance, there may be some retraction which would render them inefficient in their function about the proximal joint over which they pass.

Active Exercise

Immediate active exercises of both shoulder girdles, and, later, resistive exercises for the shoulder girdle and glenohumeral joint on the side of the amputation should be initiated. These will overcome contractures which may exist and will strengthen the entire shoulder joint and shoulder girdle in all directions. Rotation for the above-elbow amputation may be resisted manually.

Suggested active exercises:

(1) Patient sits on a bench, arms at sides. Full internal and external rotation at glenohumeral

Figure 2.

Figure 3.

joint is repeated vigorously, and at the same time arms are slowly raised over head. Return in same manner.

(2) Above may be repeated in forward flexion.

(3) Patient sits on a bench, abducts arms to shoulder level; starts slow circumductory movements and continues to increase these movements to large circles.

Resistive Exercise

Resisted movements may be given by means of a simple pulley with weight on one end of a rope, and a sling on the other end. This apparatus can be adjusted to various heights.

Suggested resistive exercises: Position the patient so that the pulley will provide resistance as follows:

(1) To the serratus anterior *(See Figure 4.)*
(2) For shoulder abduction *(See Figure 5.)*
(3) For shoulder flexion
(4) For horizontal adduction *(See Figure 6.)*
(5) For horizontal abduction
(6) For shoulder adduction with sling under the arm and bar well overhead
(7) For resistance to shoulder girdle elevation with sandbag placed on shoulder

It is sometimes difficult to resist rotation of the humerus, for the bone will rotate within the muscles and soft tissue. Sometimes pressure of the hand will be painful. However, external rotation can also be obtained in full extension overhead, and internal rotation with hyperextension. Therefore, those movements can be resisted with pulleys and weights if manual resistance is impossible.

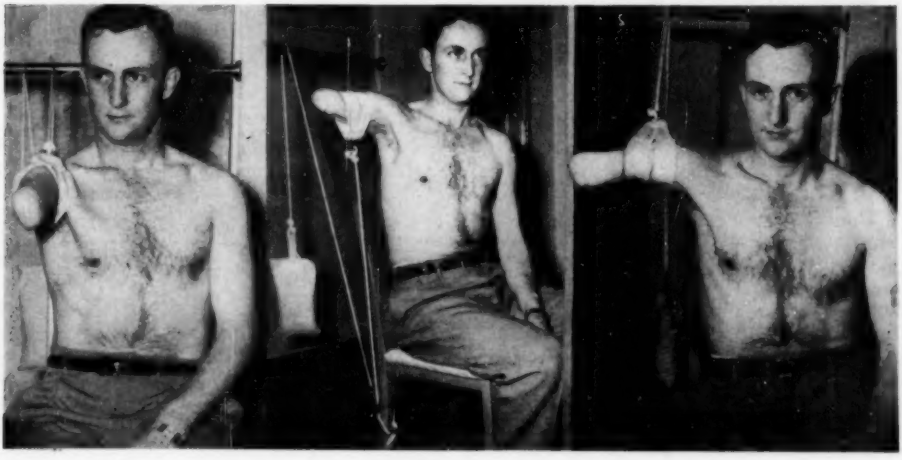

Figure 4. *Figure 5.* *Figure 6.*

Figure 7.

Figure 8.

Bandaging

At the same time a three-inch Ace bandage should be used for shrinkage of the stump and elimination of edema, thereby preparing the stump for the prosthesis. This bandage should be applied with three recurrent turns over the end of the stump. *(See Figure 7.)* The bandage is then brought diagonally around the circumference of the arm, so that it will not restrict circulation or cause a bulbous stump. A conical stump is desirable; therefore a moderate amount of pressure is exerted at the distal end and pressure decreased toward the proximal end of the stump.

It is advisable to anchor this bandage above the remaining joint to prevent it from slipping. *(See Figure 8.)* The bandage should be applied twice a day. It should be washed frequently with soap flakes and warm water and placed on a flat surface to dry. Bandage should not be rolled "on the stretch," as this causes it to lose its elasticity.

Below-Elbow Amputee

The below-elbow amputee has a similar problem. In this case there is not as much loss of weight, but the distal radius and ulna have been lost. Early exercises in pronation and supination may overcome cross union between the remaining sections of these two bones.

It must be remembered that in normal pronation and supination, with the elbow fixed at the side, rotation is through 180 degrees when measured at the hands, but is from 120 to 150 degrees when measured at the wrists. Amputation above the wrist causes a 50 percent loss of pronating ability inherent in the pronator quadratus (which causes a distinct loss of pronation). By persistent muscle retraining, the pronator teres can be developed to make up for this deficiency. The biceps brachialis and brachioradialis should have resistive pulley exercises. The pronator teres and supinator can be manually resisted.

The arm and hand must perform two rather different types of functions—the needs of daily life and industrial tasks. Requirements in daily life differ somewhat from those in industry. Such activities as washing, tying a tie, and eating involve tasks on or close to the body, and require considerable flexibility. In contrast, most of the industrial tasks involve actions away from the body. Ranges of about 90 degrees of supination and pronation are adequate for all tasks of everyday life.

The cineplasty is of greatest value in the below-elbow amputee. The forearm stump then controls elbow motion and the action of the brachialis permits the abandonment of all shoulder harness for performing shoulder flexion. Movements are more natural. The individual has an awareness of the position and size of objects and the right sense of grasp.

This operation consists of canalizing the biceps

Figure 9.

Figure 10.

Figure 11, Right.

muscle through the belly with a blunt instrument, and through this tunnel is drawn a skin tube which has been converted by reversing the flap of skin. The distal attachment of the biceps tendon is liberated by cutting the tendinous portion. A split-thickness skin graft obtained from the thigh is sutured around the edges of skin and over the exposed muscle.

After dressings and sutures have been removed, following the cineplasty operation, the muscle pin should be inserted in the channel, easing the friction by using vaseline. *(See Figure 9.)* This constitutes the cineplastic "motor."

A wishbone mechanism is later attached to this ivory pin. Through this mechanism, by contraction of the biceps, the prosthetic hand is closed. A spring attachment in the prosthesis opens the hand. *(See Figure 10.)*

When the patient becomes accustomed to the pin, he contracts the biceps to its maximum several times a day. *(See Figure 11.)* A few days later, one pound of weight is applied to the pin. Again the biceps is contracted to the maximum and held for three counts, then relaxed completely. This is repeated five times, three times a day. Gradually the weight is increased to tolerance.

This exercise will have an effect on the length-tension curve by increasing the range through which contraction is possible. If, before each contraction, the load is allowed to hang on the passive muscle, additional stretching is obtained. This additional stretching is important; it will prevent atrophy of the muscle fibers. Scar tissue from the cineplastic operation or from other causes, such as burns or lacerations about the tendinous insertions, will influence and modify the passive stretch curve.

The tensions developed in a muscle are not constant throughout its range of excursion, but vary at different lengths. Since the biceps has been cut from the insertion, it has been observed that with the elbow in the flexed position, the "motor" peg can make an excursion of 1¼ inches and, with elbow extended. ¾ inches.

When possible, the subject should have exercise before the cineplasty operation and, at that time, heavy resistance may be applied to the biceps. After the cineplasty the brachialis and brachioradialis are required to take over flexion of the elbow. An elastic strap can be arranged, as in Figure 12.

Figure 12.

If the prosthesis should have a free elbow joint, pronation and supination are very important. Where pronation is not possible, because of the mechanism of the prosthesis, the pronator teres is used in flexion with the brachialis and brachioradialis to help compensate for loss of the biceps as an elbow flexor.

Postoperative bandaging is done after the training of the cineplastic "motor" has progressed satisfactorily, and then only for a short period.

The prosthesis must be constructed to provide for special acts of strength far beyond the power of the plastic "motor" itself. This problem is solved through the medium of a lock on the hand. The hand is first closed, by the cineplastic "motor," around the objects to be seized. The lock in the hand is fastened by a movement of the other hand and the normal act of prehension is carried out. Two pounds of tension are required to close the hand and four pounds of pressure are required for a tight grasp. Some of this strength is lost in the friction mechanism of the wishbone levers (about two pounds). With the new hand developed by the Army Prosthetic Research Laboratories, pressure up to forty pounds can be used for prehension. Training in strength and coordination of the cineplastic motor should be started early, regardless of the type of prosthesis, and should be continued after the prosthesis is obtained.

When physical restoration has been obtained, training in the use of the prosthesis, vocational guidance, and selective placement will fulfill the hopes and aspirations of an amputee and minimize frustration.

Preprosthetic training plays a small part, but an important part, in achieving the complete rehabilitation of an amputee.

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School Section Papers

Your attention is directed to the two papers appearing in the April 1951 issue of the *Physical Therapy Review*, namely, "The Role of Physical Therapy in the Care of Psychiatric Patients" by Lola E. Smith and "Methods of Clinical Instructions in Physical Therapy" by Capt. Beatrice Whitcomb. These papers, together with the one entitled "The Graduate Program in Physical Therapy" by Dorothy Hewitt which appears in this issue, were presented at the School Section meeting at Cleveland in 1950.

The School Section is pleased to have had these papers accepted by the *Review* for publication since it is felt that they contain material that is of real interest to many members of the American Physical Therapy Association.

The Graduate Program in Physical Therapy

Dorothy R. Hewitt

The following discussion of a graduate program in physical therapy is limited to two of its many aspects. The first is the *occupational objectives* of students taking work beyond the basic professional training course. The second is the *evaluation of courses* by the students who have completed, or have nearly completed, graduate work leading to a master's degree in physical therapy.

By providing a "voice" for the graduate students, and thereby making available their recommendations, this study will serve the School Section of the American Physical Therapy Association in the following ways: (1) to assist school administrators who are presenting programs for graduate study to evaluate their courses, and (2) to provide information for administrators in other schools who may be considering such a program.

Procedure

Schools which grant master's degrees* or present advanced study programs in physical therapy were asked to submit the names and addresses of their graduates and also of those who had completed a major part of an advanced program. Seventy-five questionnaires were sent out to this group, sixty of which were filled in and returned. Names of persons and schools were intentionally omitted from the questionnaires. It was felt that objective data could best be obtained in this way.

Charts have been worked out on the basis of the results of this survey. The data are taken directly from the questionnaires returned and, therefore, variation in the course titles of certain subjects will be noted.

*1. Baruch Center of Physical Medicine of the Medical College of Virginia
2. Duke University
3. New York University
4. Northwestern University
5. Stanford University
6. University of Colorado
7. University of Southern California
8. University of Wisconsin

Instructor, Division of Physical Therapy, Stanford University.

Results

Chart I: Occupational Objectives of Graduate Students

Section A.—Some students had more than one objective in taking graduate work; therefore, the total percentage is greater than one hundred. Teaching was the most common objective in taking graduate work. Fifty-three percent or a little more than half of the students were attracted to this field. A little less than half (45%) of the students noted their interest in a broader knowledge of the general field. The third most common objective was a position as supervisor (31%), and by a wider margin, as staff worker in a specialized field (12%), and research assistant (6.9%).

Section B.—The question regarding the position held by the student before graduate study was included to determine, in part, the background of the students. It was believed that this information would indicate the level of approach in training individuals to best qualify them to meet their desired objectives. As will be noted in examination of the chart, the majority of students entering graduate programs have been general staff workers. Approximately one-third of the entire group were supervisors. A very low comparative percentage were teachers or staff workers in a specialized field. None were research assistants.

Section C.—This section of Chart I represents the positions into which the students were absorbed after completing graduate work. It is obvious, upon inspection of the chart, that all students did not accept openings in the fields originally preferred. This may be explained by the possibility that there were no positions available in those particular fields upon their graduation or perhaps these students changed objectives during graduate training.

Chart I

Occupational Objectives of Graduate Students

(as stated by the students)

SECTION A OBJECTIVES*	SECTION B POSITION BEFORE GRADUATE STUDY†		SECTION C POSITION AFTER GRADUATE STUDY†	
TEACHER 53%	Teacher	10%	44	%
	Supervisor	35	22	
	Special Staff	7	6	
	Research Ass't	0	6	
	Gen'l Staff	48	3	
	Student	0	10	
	Dropped		9	
STAFF WORKER WITH A BROADER KNOWLEDGE OF GENERAL FIELD 45%	Supervisor Gen'l	23%	27	%
	Special	4	24	
	Teacher	4	15	
	Research Ass't	0	15	
	Gen'l Staff	57.7	7.7	
	Special Staff	11.3	0	
	Student	0	11.3	
SUPERVISOR 31%	Supervisor	45%	66.6%	
	Teacher	5	11	
	Special Staff	5	5.7	
	Research Ass't	0	5.7	
	Gen'l Staff	45	0	
	Student	0	11	
STAFF WORKER IN A SPECIALIZED FIELD 12%	Special Staff	0%	14.3%	
	Gen'l Staff	100	14.3	
	Supervisor	0	14.3	
	Research Ass't	0	14.3	
	Student	0	42.8	
RESEARCH ASSISTANT 6.9%	Teacher	0%	50	%
	Research Ass't	0	25	
	Gen'l Staff	75	0	
	Supervisor	25	0	
	Student	0	25	

*Each number represents percentage of total, 60 students = 100%. Some students indicated more than one objective; therefore, total of all sections is greater than 100%.

†On basis of 100% for each objective.

Chart II: STUDENT EVALUATION OF COURSES IN THE GRADUATE PROGRAM

The courses the students had taken in their graduate curriculum which were considered to be the most valuable in meeting their professional needs are indicated on this chart. The courses that the students did not take but recommended for inclusion in the curriculum have also been listed. It is possible that these were already offered in the various programs, but due to time schedule complications or other reasons, the student was unable to fit the courses into his program. Each course the students recommended to meet their needs more adequately is represented on this chart.

It should be emphasized that course titles were not mentioned in the questionnaire. This procedure was purposely used to avoid the possibility of suggestion to the student and to encourage thoughtful review of the course material. It will be noted in reading the chart that in some instances there seems to be a single course represented by several different titles. All titles are those given by the students.

Chart II

Student Evaluation of Courses in the Graduate Program

(titles of courses in this chart are those given by students)

A. SCIENCE AND ALLIED COURSES

Courses	Number of students listing course as "most valuable"	Number of students recommending course
Neurology:		
Neuroanatomy	16	2
Neurology	13	5
Neurophysiology	1	2
Clinical neurology	0	3
	30	12
Anatomy:		
Anatomy	13	3
Advanced anatomy	5	4
Anatomy problems	2	0
Anatomy dissection	1	1
Anatomy of head and trunk	1	0
Microanatomy	1	0
Joint anatomy	0	1
Surface anatomy	0	1
	23	10
Physiology:		
Physiology	21	5
Advanced physiology	1	3
Neuromuscular physiology	1	1
	23	9
Kinesiology:		
Kinesiology	6	1
Advanced kinesiology	5	3
Functional anatomy	4	1
Problems in kinesiology	4	0
Applied kinesiology	0	1
	19	6
Research:		
Research work	4	0
Research technics	3	3
Research projects	1	1
General research	1	0
Clinical research	1	0
	10	4

Courses	Number of students listing course as "most valuable"	Number of students recommending course
Psychology:		
Psychology	2	0
Advanced educational psychology	1	1
Practical psychology training	1	1
Psychosomatic aspects of P. T.	1	1
Neuropsychiatric problems of the chronically ill	0	1
Psychology of the handicapped child	0	1
Applied psychology	0	1
	5	6
Statistics:		
Statistics	2	1
Statistical evaluation	1	2
Tests and measurements	0	2
	3	5
Speech:		
Speech therapy	1	1
Speech	1	0
Speech correction	1	0
	3	1
Physics:		
Physics	2	1
Biophysics	0	2
Medical physics	0	1
	2	4
Histology	2	0
Embryology:		
Embryology	1	3
Normal growth and development	0	1
	1	4
Biochemistry	0	2
Bacteriology	0	1

B. Education Courses

Organization, Administration, and Supervision:		
Organization, administration, and supervision (private clinics, P. T. depts. in hosps. and clinics)	13	5
Personnel management (student, staff, others on med. staff, and nonprofessional personnel)	1	4
Business procedures (finances and records)	1	3
Public administration	1	1
Counseling and guidance (staff, students, patients)	0	2
School administration	1	0
Practical problems	0	2
In-service training programs	0	2
	17	19
Seminars:		
Review of current literature (practice in handling, collecting, summarizing, and evaluating data. Review of related scientific literature)	2	3
Exchange of ideas	2	1
Advanced courses	2	0
Evaluation of current trends and developments	0	8
Medical ethics and law	0	2
Nursing education	0	1
	6	15
Teaching Methods:		
Principles and methods	5	9
Practice Teaching:		
Supervisory, clinical, and classroom practice teaching	7	6
Scientific Writing:		
Thesis development and writing	2	0
Advanced English composition for scientific writing	0	2
	2	2
Curriculum Planning:		
Development and problems of curriculum planning	1	1

C. Workshop Courses

Therapeutic Exercise:		
New developments and procedures	8	3
Cerebral Palsy	5	3
Electrotherapy:		
Electrodiagnostic technics with new types of equipment	5	4
Rehabilitation	4	4
Hydrotherapy	4	0
Body Mechanics	3	0
Scoliosis	2	0
Advanced Clinical Practice	1	2

Other material and pathological conditions recommended for study in workshop courses: braces and appliances (3), geriatrics (3), diagnostic tests of all kinds (3), gaits (2), polio (2), amputations, photography (motion and still), X-ray interpretation, Mennell's manipulations, Billig's mobilization, electromyography, chronic diseases, Kabat-Kaiser technics, peripheral vascular diseases, paraplegics, multiple sclerosis, and cardiacs.

A series of questions were included concerning the thesis:

1. *Question:* Did you complete a thesis for the master's degree?

   Answer:

Yes	36
In progress	6
No	10

2. *Question:* Do you think that a thesis should be required for a master's degree?

   Answer:

Yes	40
No	13

3. *Question:* A. Had you had any articles published before you obtained your degree?

   Answer:

A: Yes	9
No	49

B. Have you had any articles published since you obtained your degree?

B:	Yes	7
	No	38

4. *Question:* Do you think that your advanced training has been helpful in organizing and interpreting data for publication?

Answer:

Yes	43
No	5

In the group answering Question 2, of the thirteen replying in the negative seven did not write a thesis and three were in the process of writing one. Therefore, there were three individuals remaining who, having written a thesis, did not believe that it should be required for a master's degree.

The consensus of those not in favor of the thesis follows:

1. A thesis should be optional.
2. Alternate requirements should be offered.
   a. Publish an article
   b. Complete a research study less formal than a thesis
   c. Take an evaluation seminar
   d. Take a course in scientific writing

To summarize the graduate students' viewpoint regarding curriculum, the basic science courses were rated as the most valuable by those who had taken them and additional science courses were strongly recommended by those who did not take them. Courses in organization, administration, and supervision were judged as valuable and recommended highly. These courses and the seminars (presented in Chart II, Section B) were recommended more frequently than any other single group of courses.

Students who have written theses stated almost unanimously that these studies were worth while and valuable to them, and should be required for a master's degree in physical therapy.

From the wide variation of objectives in graduate study, it is apparent that a well-rounded program should be designed in order to meet the needs of all students. Opportunity should be allowed for individual consideration in the selection of courses, depending upon the specific objective or objectives of each student.

The author wishes to inject a comment at this point. Expression of our professional service and research endeavors must be encouraged to further establish our standing with associated groups of the medical world. Graduate students are a fertile source of professional expression and it would seem that the graduate curriculum, in addition to its other responsibilities, might encourage and better prepare these students for public speaking and scientific writing.

If you feel that the data presented have been helpful to the members of the School Section, it is suggested that you request additional studies to assist in fitting the graduate program to professional demands. Sincere appreciation is expressed to each of you who has helped make this survey possible.

Reprints Available

Informational brochures may be obtained without charge. A small charge is made for the scientific reprints, as indicated. (Members of the Association, students enrolled in approved schools of physical therapy, and libraries may have one free copy of each scientific reprint, except the Functional Issue and the Physiology Symposium, but must pay the indicated price for additional copies.) All requests should be addressed to: American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

PHYSICAL THERAPY—An illustrated brochure, describing the opportunities for a career in physical therapy, with suggestions for prospective students and a list of schools approved for physical therapy training.

OUR ASSOCIATION—An informational booklet on the activities, scope, and services of the American Physical Therapy Association.

SUGGESTIONS FOR PROSPECTIVE STUDENTS—Outlines the professional course of study for college students preparing for physical therapy.

CODE OF ETHICS—Ethics for the physical therapist of the American Physical Therapy Association.

ESSENTIALS OF PROFESSIONAL ETHICS IN PHYSICAL THERAPY—*Mary E. Haskell*

PERSONNEL POLICIES FOR QUALIFIED PHYSICAL THERAPISTS—Suggestions as to salary, hours, vacations, etc., by the American Physical Therapy Association.

APPROVED SCHOOLS OF PHYSICAL THERAPY—A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

QUESTIONS AND ANSWERS—A concise outline describing physical therapy education and application.

EDUCATIONAL OPPORTUNITIES FOR PHYSICAL THERAPISTS—A list of postgraduate programs offered by the approved schools and a list of specialized courses for physical therapists.

PHYSICAL THERAPY EMPLOYMENT OPPORTUNITIES.

UNDERLYING MECHANISMS IN SYMPTOMS OF POLIOMYELITIS: THEIR BEARING UPON TREATMENT—*Thomas Gucker, III, M.D.*

THE PHYSICAL THERAPY DEPARTMENT FROM AN ADMINISTRATOR'S VIEWPOINT—*Joseph P. Peters.*

THE DROP PACK FOR MOIST HEAT—*Adeline E. Doing*

HOME CARE PROGRAM FOR POLIOMYELITIS PATIENTS—*Emil D. W. Hauser, M.D., Antoinette Rajek, and Louise Reinecke*

DAILY ACTIVITY INVENTORIES OF CEREBRAL PALSIED CHILDREN IN EXPERIMENTAL CLASSES—*Mary Eleanor Brown*

PHYSICAL THERAPY IN STATE CRIPPLED CHILDREN'S PROGRAMS—*Mildred J. Allgire*

THE ROLE OF THE PHYSICAL THERAPIST IN THE TOTAL CARE OF THE CHILD—*Julius B. Richmond, M.D.*

POSTURE TRAINING FOR ADOLESCENTS—*Carolyn Bowen* (5c)

PHYSICAL THERAPY IN THE PRENATAL PROGRAM—*Gillian Griffith Smith, B.S.* (5c)

METHODS OF CLINICAL INSTRUCTION IN PHYSICAL THERAPY—*Beatrice E. Whitcomb, Capt., WMSC*

FUNCTIONAL TRAINING—*Edith Buchwald* (10c)

ADMINISTRATION OF A COMMUNITY REHABILITATION CENTER—*Hazel E. Furscott* (10c)

WHEEL CHAIRS—*George G. Deaver, M.D.* (5c)

REHABILITATION OF THE HEMIPLEGIC PATIENT—*Donald A Covalt, M.D.* (5c)

PATIENT INSTRUCTION—*Margery L. Wagner* (5c)

PHYSICAL THERAPY HOME CARE PLAN, ORANGE COUNTY (CALIFORNIA) HEALTH DEPARTMENT (5c)

MEASUREMENT OF JOINT MOTION, PARTS 1, 2, AND 3—*Margaret Lee Moore* (25c)

TOYS, GAMES, AND APPARATUS FOR CHILDREN WITH CEREBRAL PALSY—*Gladys G. Rogers and Leah Thomas* (10c)

ROLE OF PHYSICAL THERAPY IN CARE OF PSYCHIATRIC PATIENTS—*Lola E. Smith* (5c)

SPECIAL FUNCTIONAL ISSUE of the *Review* (November 1949)—Contains eight articles by leading physicians and physical therapists on functional training, crutch walking, and wheel chairs. There are twenty-six abstracts of articles on functional training from current medical journals. (50c)

PHYSIOLOGY OF THE HEART AND CIRCULATION AND ITS CLINICAL APPLICATION IN PHYSICAL MEDICINE—A bound edition of the papers presented in a symposium at the 1950 annual conference of the American Physical Therapy Association. (*Harry D. Bouman, M.D.*, Coordinator) ($1.00)

Editorials

ONE OF THE more serious problems facing the *Review* staff continues to be the procurement of papers suitable for publication. Despite many requests both to groups and individuals pointing out the need for material, the interests of the readers, and the responsibilities each of us has in the dissemination of information, the return continues to be small. So very frequently our appeals are answered with the excuse that the member does not know how to compile the material in a suitable form or has no idea of the exact subject matter to select.

We are pleased, therefore, to present in this issue an article by Dr. Frances Hellebrandt concerning both the technic of writing and the selection of material for scientific papers. We sincerely urge each of our readers to consider carefully the content of this article. Here is presented a factual, precise, and specific guide which will, we are sure, be of great help to all present and potential authors.

Dr. Hellebrandt has not only pointed out the step by step approach necessary to prepare a useful paper, but has also listed a great number of specific topics suitable for consideration.

We are convinced that a great many physical therapists have much to add to the literature of the profession. New methods, new technics, new facts are constantly being evolved in many parts of the country. All of this material is, and will continue to be, of interest to the practicing physical therapist, the research worker, and the student. As a young profession we have profound responsibilities to spread all information, be it large or small, practical or theoretical, to our fellow members.

We urge you, therefore, to read this article carefully and to consider sincerely how you can fulfill your obligation to the growth and development of the field.

IN SEVERAL recent issues of the *Journal of the American Medical Association* there have appeared a surprisingly large number of notices concerning state legislation relating to physical therapy. Most of the information is in regard to new laws governing the control of physical therapy and the registration or licensing of physical therapists, while a few bills have been introduced amending existing laws in some states.

This noticeable increase of interest in the problems of legislation for physical therapy should be of serious concern to each one of us in the profession. All such legislation must, by its very nature, have a real and long reaching effect on our future status as a profession, on our financial security, and on our ability to provide what we feel is adequate patient care.

Such action as may be taken by the various legislative bodies should receive our very careful and considerate critical attention and judgment. It is imperative that we show an active, informed interest in the provisions of each bill and particularly in those of our own state. Not only should we be cognizant of the advantages and benefits of all legislation but we must be foresighted enough to appreciate the implications which may be disadvantages if they become law.

No one of us can afford to be apathetic in regard to state legislation. Bills are introduced and acted upon in direct proportion to the interest and pressure which is evident to the legislators. Such interest and influence may be by individuals, groups, or both, but it must be present. Whether it is for a desirable bill or to defeat an undesirable one, the necessity for positive action is present. Poor legislation is the direct responsibility of that group upon which it reflects. We must be aware of activity in legislation affecting our field and, what is even more important, we must be prepared to take constructive action in relation to it.

CONFERENCE 1951

HOTEL COLORADO
Glenwood Springs, Colorado
June 16 to 22, 1951

Business Meetings and Program Schedule

Thursday and Friday, June 14th and 15th

all day — Executive Committee Meetings

Saturday, June 16th

all day — School Section

Sunday, June 17th

all day — House of Delegates
7:30 p.m. to 9:30 p.m. — Advisory Council Meeting

Monday, June 18th

9:00 a.m. to 12:00 noon — House of Delegates
2:00 p.m. to 4:00 p.m. — Advisory Council Meeting
4:00 p.m. to 6:00 p.m. — Punch Bowl—Hostess: Colorado Chapter
7:30 p.m. to 9:00 p.m. — Meetings: Standing Committee, National Chairmen, and Chapter Chairmen. Movies

Tuesday, June 19th

9:00 a.m. to 12:00 noon — **Physical Therapy for Amputees:** Chairman, *Harold Dinken, M.D.,* Professor and Director, Physical Medicine and Rehabilitation, University of Colorado

9:00 - 9:30 — Convocation and Greetings

9:30 - 10:15 — Basic Analysis of Gait and Problems of Gait Training of the Leg Amputee

10:30 - 11:15 — Specific Problems in Relation to Fit and Alignment of Lower Extremity Artificial Limbs
Charles Bechtol, M.D., Assistant Clinical Professor, Orthopedic Surgery, University of California

11:15 - 12:00 — Problem Cases of the Amputee Patient, *Donald A Covalt, M.D.,* Associate Professor of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center

2:00 p.m. to 5:00 p.m. — Trip to Aspen
7:30 p.m. to 9:00 p.m. — Western Cabaret

Wednesday, June 20th

9:00 a.m. to 12:00 noon — **Chest Disabilities**

9:00 - 11:15 — Functional Anatomy and Physiology of the Normal and Pathological Chest
a) Discussion of Cardio-Pulmonary Function Testing
b) Medical Care of Diseases of the Chest
Sidney H. Dressler, M.D., F.C.C.P., Assistant Medical Director, National Jewish Hospital, Denver; Special Consultant to the Officials of the United States Public Health Service in Tuberculosis

11:15 - 11:45 — Physical Therapy in Medical Diseases of the Chest, *Evelyn May,* physical therapist, formerly at the Brompton Hospital for Diseases of the Chest, London

11:45 - 12:00 — Discussion Period

2:00 p.m. to 5:00 p.m. — **Workshop Demonstrations**
I. Physical Therapy in Chest Disabilities
a) Physical Therapy in Medical Diseases of the Chest: *Evelyn May,* physical therapist, formerly at the Brompton Hospital for Diseases of the Chest, London
b) Physical Therapy Following Chest Injuries and Thoracic Surgery Procedures (for diseases other than tuberculosis): *Florence S. Linduff,* Chief, Physical Therapy Section, Physical Medicine Rehabilitation, Veterans Administration, Washington, D. C.

c) Physical Therapy in the Surgical Treatment of Pulmonary Tuberculosis: *Major Olena Cole*, Chief, Physical Therapy Section, Valley Forge Army Hospital, Phoenixville, Pa.

II. EXERCISE TECHNICS USED IN KABAT-KAISER INSTITUTES

Margaret Knott, Head Physical Therapist, Kabat-Kaiser Institute, Vallejo, Calif.

Ann Gaither Brickerd, Head Physical Therapist, Kabat-Kaiser Institute, Washington, D. C.

Nora Staael, Head Physical Therapist, Kabat-Kaiser Institute, Santa Monica, Calif.

III. ELECTRICAL STIMULATION AND TESTING

Margaret Moore, Educational Consultant, American Physical Therapy Association

Jerome W. Gersten, M.D., Assistant Professor of Physical Medicine and Rehabilitation, University of Colorado School of Medicine

(All demonstrations will be given concurrently at the following times: 2:00 - 3:15 p.m. and 3:45 - 5:00 p.m.)

7:30 p.m. to 9:00 p.m. Research Papers—speakers to be announced

Thursday, June 21st

9:00 a.m. to 12:00 noon **Chest Disabilities**

9:00 - 10:00 SYMPOSIUM ON THORACIC TRAUMA: Medical Officers, Fitzsimons Army Hospital, Denver

I. Introduction, *Colonel James H. Forsee, MC*

II. Intrathoracic Foreign Bodies, *Captain H. A. Blake, MC*

III. Decortication of Lung, *Major William H. Moncrief, Jr., MC*

IV. Pulmonary Function Studies, *Major Stephen L. Kylar, MC*

V. Physical Medicine Aims and Demonstration, *Major Van S. Taylor, MC*

10:00 - 10:30 PHYSICAL THERAPY FOLLOWING CHEST INJURIES AND THORACIC SURGERY PROCEDURES (for diseases other than tuberculosis), *Florence S. Linduff*, Chief, Physical Therapy Section, Physical Medicine Rehabilitation Division, Veterans Administration, Washington, D. C.

10:30 - 11:15 SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS, *Colonel James H. Forsee, MC*, Chief of Surgical Service, Fitzsimons Army Hospital

11:15 - 11:45 PHYSICAL THERAPY IN THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS, *Major Olena M. Cole*, Chief, Physical Therapy Section, Valley Forge Army Hospital, Phoenixville, Pa.

11:45 - 12:00 Discussion Period

2:00 p.m. to 5:00 p.m. **Workshop Demonstrations**

I. PHYSICAL THERAPY IN CHEST DISABILITIES

a) Physical Therapy in Medical Diseases of the Chest: *Evelyn May*, physical therapist, formerly at the Brompton Hospital for Diseases of the Chest, London

b) Physical Therapy Following Chest Injuries and Thoracic Surgery Procedures (for diseases other than tuberculosis): *Florence S. Linduff*, Chief, Physical Therapy Section, Physical Medicine Rehabilitation, Veterans Administration, Washington, D. C.

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(All demonstrations will be given concurrently at the following times: 2:00 - 3:15 p.m. and 3:45 - 5:00 p.m.)

6:00 p.m. to 8:00 p.m. Chuck Wagon Dinner

Friday, June 22nd

9:00 a.m. to 12:00 noon **Physical Therapy in Neuropsychiatry**

9:00 - 10:15 THE PSYCHOLOGY OF CRIPPLING AND CHRONIC ILLNESS, *Laurence Fairchild, M.D.*, Assistant Professor of Psychiatry, University of Colorado; Director of Mental Hygiene, Public Health Department, State of Colorado

10:30 - 11:15 MEDICAL ASPECTS OF A PSYCHIATRIC PROGRAM, *John J. Blasko, M.D.*, Chief of Professional Education, Veterans Administration Hospital, Gulfport, Mississippi; Clinical Assistant Professor of Neuropsychiatry, Louisiana State University School of Medicine

11:15 - 11:45 PHYSICAL THERAPY IN A PSYCHIATRIC PROGRAM, *Lola E. Smith*, Chief Physical Therapist, Veterans Administration Hospital, Gulfport, Mississippi

11:45 - 12:00 Discussion Period

Howdy, Pardners!

The social part of the program for the 1951 Conference has been especially planned to give you a lasting memory of the most scenic part of "colorful Colorado," with a glimpse into the life and history of the Old West.

The Punch Bowl party on Monday afternoon will be held on the patio of the Colorado Hotel with a background of Western music. Here you will greet old friends and meet new ones.

Tuesday afternoon a trip to Aspen has been planned. Aspen is widely known as one of the outstanding recreation centers in North America, featuring skiing in the winter and music festivals in the summer. Members will have an opportunity to ride the longest chair lift in the world. Up you'll go, for three miles, to the top of Ajax Mountain where you can relax on the Sundeck and where the camera fans can take pictures of spectacular beauty.

In the town of Aspen there are many interesting shops to visit and places of historic interest dating back to the "rip-roaring" days of gold and silver mining.

At the Cabaret on Tuesday evening there will be true Western entertainment. On the program will be Ray Krosky and his group, who are Colorado square dancing champions, and Paula Mecheau's ballad singers.

An old-fashioned Chuck Wagon Dinner will be held on Thursday evening. All members will participate in a Western songfest, and entertainment will be provided by "local talent."

Colorado chapter members will conduct guided tours to many beautiful spots around Glenwood Springs. There will be swimming in the largest outdoor hot mineral water swimming pool in the world, and hiking and horseback riding jaunts through Glenwood Canyon along the Colorado River to Grissly Gulch and unusual Hanging Lake.

Glenwood Springs is the gateway to Holy Cross and White River National Forests, both of which offer a large variety of unsurpassed attractions to motoring visitors. A short drive will take you to Maroon Bells, Redstone, and Marble, the home of Colorado marble where you can gather natural marble fragments for paper weights, door stops, book-ends, etc., by the side of the road.

Courtesy of Denver and Rio Grande Western Railroad

Hagerman Peak of Snowmass Lake, Glenwood Springs Region

The foregoing is a brief description of what "colorful Colorado" has to offer you in fun during Convention Week. Come, enjoy yourself, and let us show you genuine "Western hospitality" high in the heart of the Colorado Rockies.

—LORRAINE G. PAULSON
Chairman, Entertainment Committee

Denver Physical Therapy Departments

All departments will be operating with skeleton staffs during the week of the Conference. At other times, visitors will be welcome between 9 and 11 a.m. and 1 and 3 p.m. on week days. (Visitors may come during conference week but should not expect to see departments going full force.) All other hospital departments will be open the week of Conference. For information as to how to reach any of the following hospitals call the Cerebral Palsy Clinic, Children's Hospital, at Main 1261, Extension 38, between 8:30 a.m. and 4:00 p.m.

Children's Hospital, East 19 Avenue and Downing

Fitzsimons Army Hospital, about six miles east of Denver city limits, on Highways 36 and 40

Colorado General Hospital, East 9 Avenue and Colorado Boulevard, also open Saturday 9 to 11 a.m.

Sewall House, 1360 Vine Street.

Post-conference Visits

The National Jewish Hospital in Denver will be happy to arrange post-conference visits for any of the members who are interested. Keep it in mind and sign up while at Conference.

Vacation in the Rockies

Those who would like to take advantage of the many vacation opportunities offered in the Colorado Rocky Mountain region following the convention may contact Kay Stewart of the Kay Stewart Travel Service, 530 - 17th Street, Denver, who will mail full information.

At no extra cost, Miss Stewart will arrange post-convention trips and vacations for those interested. As suggestions, these might include the following:

(1) A tour of Yellowstone National Park

(2) A circle trip covering several days and embracing Utah National Parks, Salt Lake City, the Royal Gorge, and Colorado Springs and Denver

(3) A week or longer on one of Colorado's or New Mexico's famous guest ranches

(4) Rail, air, or bus trip including Santa Fe and Taos, New Mexico, the Grand Canyon in Arizona, and the Carlsbad Caverns

(5) Several days or longer at Estes Park at the delightful resort, The Crags

(6) A vacation at Aspen, Colorado, including riding, swimming, delightful accommodations, and meals, in addition to fishing, hiking, etc.

Complete outlines of any of these suggested vacations or of others which you may have in mind will be furnished by Kay Stewart. All reservations will be made and completed "vacation packages" delivered to you. There are no extra charges for these services.

It is urged if you are anticipating anything of this sort that you make request for information and reservations early as travel in the West this year is going to be extremely heavy.

Bylaw Amendment

It is proposed to amend the bylaws at the 1951 conference, specifically Article V wherever the words Executive Secretary occur, to strike out "Secretary" and insert "Director." This would officially authorize the title which is now being used on recommendation of the Executive Committee and is thought to be more definitive of the duties of the administrative head of our National Office.

Facts about the Conference

Rates American Plan. Eleven dollars a day per person, double; ten dollars a day with three in a room. There are no singles. Select a roommate, or, if you do not know anyone attending, the hotel will assign you. Rooms are large, and many accommodate three very nicely.

Reservations Will be made with the hotel.

The Hotel Colorado requests that a one-day deposit be sent with each reservation. In the event that cancellation is necessary the deposit will be returned provided the Hotel is notified ten days in advance.

Registration

Active, Inactive, and Associate members —$5.00
Student members—$2.00
Members of allied professions and physical therapists from other countries—no fee

Since we are on American Plan all meals are included in room rate, but two dollars will be charged to cover additional cost of two special functions, the Chuck Wagon Dinner and the Western Cabaret. Total cost of registration and entertainment—$7.00

Note Registration is to be in advance. Forms have been sent out.

School Section Program

All members of the School Section are urged to attend the meeting on Saturday, June 16th.

In the morning a stimulating program is being prepared consisting of group discussions. The workshop technic will be used in order that everyone may participate and contribute. Details concerning this will be sent to you by Dorothy Baethke, Chairman of the School Section.

In the afternoon, time will be allowed for a report and discussion of the student selection program, followed by reports and recommendations from the morning workshop.

It is hoped that every school will be represented, not only in the didactic instruction phase, but in the clinical as well.

The Director Reports:

Spring in the National Office brings on the opposite of what is commonly considered to be spring fever. It is a period of concentrated hyperactivity on the part of everyone. All the many duties which come with the end of the fiscal year—bills for dues, preparation of enclosures for necessary information, the annual conference work, report forms for the standing committees, final details of the program, travel arrangements, advance registration, etc.—must be taken care of. In addition, the requests for informational material for "career days" and for chapter annual meetings are markedly increased. During March 15,583 pieces were sent out.

The members of the professional staff are on demand for meetings and conferences, but only a limited number of obligations can be accepted, due to pressure of office work.

In March the Director participated in a panel discussion on problems of recruitment at the annual meeting of the state representatives of the National Foundation for Infantile Paralysis. It was pleasant to hear that the representatives had been most pleased with the work of our polio recruitment division under Lucy Blair's able leadership. The discussions were most interesting and I was impressed with the serious and thoughtful way in which the representatives were approaching their mounting problems due to the high incidence of polio during the past three years. They were assured that the Association would cooperate in every way in efforts to keep medical care costs down. With fewer personnel available and funds definitely limited, it is a challenge to all of us to do a better job. Hospitalization time must be reduced, which means that physical therapists must do more teaching of parents so that treatment may be carried on by them, at home, wherever conditions permit. A series of articles in the *Review* on home care is being planned, and the first one will be in the next issue. Be sure to read the symposium on polio in the March issue of *Hospitals*. It is excellent.

Lucy Blair attended a joint conference in Washington of members of the National Foundation staff and the Children's Bureau to discuss plans for anticipated problems in this coming polio season.

During the last three days of March the advisory committee to the Educational Consultant met to review the work of the past year and to discuss and formulate a coordinated plan for the coming year. The amount of work accomplished, as you will hear at Conference, is sizeable. The projects under way, and the anticipated musts, are enough to make Miss Moore wish she were triplets!

The amount of inquiries about the World Confederation for Physical Therapy is extremely gratifying. It looks as though there will be about fifteen physical therapists from the United States attending.

It is hoped that the members will make real efforts to attend the annual chapter meetings this coming month. This is one of the most important meetings of the year, professionally. Learn what your chapter has done; what the plans are; and instruct your delegates for the annual meeting. This meeting is your voice. Attend and participate.

—MILDRED ELSON, *Executive Director*

Association Activities

Chapter News

Ohio. Early in the year, a new district was formed in the Ohio Chapter. This district centers around Dayton and is called the West Central District. Other Ohio Chapter Districts are Southwestern, Northern, and Central.

The annual meeting of the Chapter was held in Dayton on April 6th and 7th. A very impressive program was presented, including a talk by Dr. Frank Shively, Jr., on civilian defense, a banquet speech by Louise Baker, and four papers presented by chapter members. The Chapter business meeting was held on April 7. A feature of the meeting was the "Idea Corner" where devices to aid both patients and physical therapists were displayed.

Florida. The Chapter held its annual meeting at Tallahassee at the time of the Florida Children's Commission meeting. Dr. Alfred R. Shands, medical director of the Alfred I. du Pont Institute, Wilmington, Delaware, was a guest at the meeting.

World Confederation for Physical Therapy, September 7 and 8, 1951

Information about travel and accommodations was printed in the March REVIEW. Housing and registration blanks have been sent to those indicating an interest in going.

Remember there are two other meetings: the Second International Polio Conference in Copenhagen, September 2nd to 7th, and the Fifth World Congress of the International Society for the Welfare of Cripples in Stockholm from September 9th to the 14th.

Recruitment Poster

A very attractive blue-and-gold poster is now available for distribution. The size is 8 x 10 inches, suitable for bulletin boards. Supplies will be mailed to chapters, and to members on request. Let's get it up in schools, libraries, Y.W.C.A.'s, and as many other places as possible.

Medical College of Virginia Students Conduct Campaign

We students in the Physical Therapy School of the Medical College of Virginia are actively conducting a campaign to direct the attention of Congress to Bill H.R. 911 as introduced by Representative Frances P. Bolton of Ohio, and Bill S. 661 introduced by Senator Irving Ives of New York, which, if passed, would grant commissions in the Armed Services to male physical therapists, occupational therapists, and nurses. Unless this or a similar bill becomes law, male physical therapists, occupational therapists, and nurses who are required to enter the Services will have no assurance of status in their respective professions.

Due to the critical need for physical therapists and the rapid growth of the profession since the end of World War II, many males have been attracted to the field, creating a situation similar to the one that faced our female colleagues at the beginning of World War II. At that time legislation was approved which granted the physical therapist (only the female, however) her rightful professional status in the Armed Forces. Today the profession is confronted with a similar problem. Males in the above professions enter the Services as privates, despite the fact that their educational qualifications and specialized training are identical to those of female members.

We urgently invite all physical therapists to join our efforts to correct the unfortunate situation that exists in the Services with regard to male physical therapists, occupational therapists, and nurses. We urge you to write to Chairman Vinson of the House Armed Services Committee to which the bill has been referred, and to your own Congressmen requesting that hearings be conducted. This seems a good time for action since the Committee is now considering the manpower needs of the Armed Services. If you do not have the time to get the facts organized, write to us at the Medical College of Virginia and we will send them to you. WRITE IMMEDIATELY! Address your request to: Alfred J. Szumski, Physical Therapy School, Medical College of Virginia, Richmond 19, Virginia.

Membership News

New Student Members

Columbia University

Margaret Zelmanowitz

Hermann Hospital

Shirley Asklund
Phyllis B. Basford
Edward T. Coulston
Helen M. Felix
Madell Frazier
Effie Knox
Ann L. Park
Thomas G. Parker
Virginia M. Rowan
Gloria H. Spano

Boston University—College of Physical Education for Women: Sargent

Lucille Alvord
Suzanne Appleton
Mary Ann Austin
Claire Barclay
Marian Bonisteel
Marguerite Christjohn
Marilyn Cleffi
Joyce Cobb
Thelma Davis
Carol Dias
Aurelia Dodge
Margaret Dow
June Ferron
Nancy Hirsch
Joanne Lewis
Tula Civetta LaValley
Mary Ellen Moore
Rose Muratore
M. Jean Murphy
Joan Quinn
Norma J. Rice
Barbara Schillinger
Anna Jane Smolak
Barbara Stearns
Helen M. Walker
Lois Wilcox
Joan Wilson

St. Louis University

Margaret M. Kreisle
Sally Mammen
Homer B. McDougall
Harriet M. Moore
Anthony Vecchiarelli, Jr.

University of Colorado

Florence P. Hawkinberry

University of Iowa

Philip Abood
John H. Blauer
Frank V. Curry
Mary Jeanne Dorr
Dale R. Fellows
Margaret J. Galbraith
Helen J. Hislop
Beverly Jane Mason
LeRoy D. Meyer
Carolyn F. Morse
Wayne V. Paustian
Paul A. Raines
Doris H. Reid
Helen J. Steele
Bernard Strohm

Marriages

Isobel J. Hansen of Angwin, Calif., now Mrs. Isobel H. Lohne of Hinsdale, Ill.
Marion L. Hartman of Bala Cynwyd to Walter R. Kempf of Lancaster, Pa.
Eleanor F. Myers to A. V. Martini, Minneapolis.
Dorothy Swanson of Grand Rapids, Mich., to S. M. Dix of Brooklyn, N. Y.
Elizabeth L. Shattuck of East Pepperell, Mass., now Mrs. Elizabeth S. Hewitt of Hanover, N. H.
Marie A. Peront, now Mrs. Marie P. Woolner, Worcester, Mass.
Margaret H. Krone, now Mrs. Margaret K. Demchock, Cleveland.
Alice Kranz to Harold Rainwater, Exeter, Calif.
Mrs. Elinor E. Townsend of Stanford, now Mrs. Elinor E. Haley of Redwood City, Calif.

Marie Fackt, M.D.

Dr. Marie Fackt, a former member of the Association and a Director from 1934 to 1936, passed away after an illness of several months on March 21st, in Denver, Colorado.

Dr. Fackt received her physical therapy training in Dr. Robert Lovett's office in 1921 and 1922. She was associated with Alice Lou Plastridge in Chicago for the next four years. In 1926 Dr. Fackt went to Denver to prepare for medicine and was graduated from the University of Colorado School of Medicine in 1936.

Dr. Fackt contributed much to the development of the Association and maintained her interest and affiliation until 1944.

Charlotte H. Ballard

Charlotte H. Ballard died on March 1, 1951, in San Francisco after an illness of many years. She can be called a pioneer in physical therapy, especially on the West Coast, as she was one of that hardy group of physical therapists of World War I which became the nucleus of the American Physical Therapy Association.

After serving at Letterman General Hospital, she included in her professional positions those of Head of Department of Physical Therapy at St. Francis Hospital and at Franklin Hospital, where the doctors, the nurses, and her fellow physical therapists all remember her with admiration and respect for her spirit of service.

In 1929-1930 when the Association boasted only about five hundred members and ten chapters, she was Secretary of the American Physical Therapy Association. After work, alone, she carried on a correspondence which accomplished such activities as an investigation into schools which culminated in the approval by the Council on Medical Education and Hospitals of the American Medical Association; the organization of six new chapters—Northern California, Southern California, Wisconsin, Michigan, New Jersey, and Texas; the incorporation of the Association; the processing of new members; the business of obtaining conformity in chapter constitutions; and the myriad of details that occurred in the coming of age of the Association.

An editorial in the *Review* for December 1929, during her term of office, states, "Living is made up of human attachments and enthusiasms and sympathies and sharing your interests with those of like tastes. That is living, no matter what else life may bring or fail to supply! All of us should give attention to local and national affairs, and strive to form intelligent opinions on the various subjects that come before the Association. We are in an interesting period of development, still on the frontier, with opportunities ahead for ever closer working relationships with doctors and medical associations."

Before her long illness, whether physical therapist, fellow worker, or friend, Charlotte Ballard fulfilled every obligation suggested by that editorial.

She will be missed by her friends, her community, and her contemporaries. I would like to feel that the young physical therapists, though they did not have the privilege of knowing her, might pause a moment to take special cognizance of the characteristics and attributes of a physical therapist who served her profession so well.

HAZEL E. FURSCOTT

General News

Fulbright Awards for 1952-53

The Conference Board of the Associated Research Councils, Committee on International Exchange of Persons, has announced that approximately seventy awards for university lecturing and advanced research are available under the Fulbright Awards for 1952-53 in East Asia, the Pacific, and other areas. Additional information may be obtained from the Executive Secretary of the Committee at 2101 Constitution Avenue, Washington, D. C.

New Multiple Sclerosis Society Publication

The following notice has been received from the National Multiple Sclerosis Society, 270 Park Avenue, Suite 7G, New York 17, N. Y.:

"The National Multiple Sclerosis Society has recently published an important new monograph entitled *Multiple Sclerosis: Application of Rehabilitation Techniques* by Edward E. Gordon, M.D. This is not only significant for physical therapists who treat multiple sclerosis patients, but the data which are contained therein will undoubtedly have applicability to the treatment of other types of chronic disease by physical therapy.

"This monograph while expensive to produce will be distributed without charge to qualified physical therapists under supervision of licensed physicians. The monograph may either be requested by the physician for his staff or may be requested by the physical therapist who can secure the approval of the supervising physician on his stationery. This procedure has been adopted only to insure getting this material into responsible hands. While no charge will be made for this material, any contribution which may be made by its recipients will be carefully applied to our work.

"Within another two months we shall publish four small monographs, designed specifically for patients, which shall be particularly applicable, respectively, to the ambulatory patient, the patient on crutches, the wheel-chair patient, and the patient who is confined to bed."

Fifth World Congress Program

The program for the Fifth World Congress of the International Society for the Welfare of Cripples, to be held in Stockholm, Sweden, September 9 to 14, 1951, is being drawn in its final form by the Organization Committee under the direction of Mr. Konrad Persson, President of the Congress.

The theme selected for the Congress is "Complete Services for the Disabled: A World Goal," and the program is being developed to carry out this concept. It is anticipated that the program in its final form will include sessions devoted to the consideration of international and national organi-

zation of services for the handicapped and to the coordination of medical, social, and pedagogic services in providing for the disabled individual. Other general meetings will examine progress and planning in vocational rehabilitation and in the employment of the disabled.

World Health Organization Recognizes Society for Cripples

The International Society for the Welfare of Cripples has been included among the nongovernmental organizations to be brought into official relations with the World Health Organization, it was announced recently by Dr. Brock Chisholm, Director-General of WHO. This action was taken by the Executive Board of WHO at its seventh session.

This recognition of the International Society will make possible more direct exchange of information between the World Health Organization and the Society, participation of the Society in the activities of WHO which relate to the handicapped, and presentation to WHO of the views of the International Society.

Previous recognition has been extended by the Economic and Social Council of the United Nations, which granted the Society consultative status. A working agreement with the International Refugee Organization and membership in the UNICEF-UNAC Advisory Committee of Non-Governmental Organizations enables the International Society to participate in the programs of these other agencies of the United Nations.

International Congress of Physical Medicine, 1952

The International Congress of Physical Medicine will be held in London from July 14 to 19, 1952.

In accordance with the regulations of the International Federation of Physical Medicine, the meetings of the Congress will be reserved for matters dealing with the clinical, remedial, prophylactic, and educational aspects of physical medicine and with the diagnostic and therapeutic methods employed in physical medicine and rehabilitation.

Technical, scientific, and historical exhibitions also will be arranged.

In addition to the Scientific Program, a full program of social events and entertainment is being planned for the members and associate members. Arrangements for London and provincial visits of scientific and historical interest are also being made for the Congress week and the following week.

This is a preliminary notice; full details will be made available later. Applications for the Provisional Program should be addressed to the Honorary Secretary, International Congress of Physical Medicine (1952), 45, Lincoln's Inn Fields, London, W.C. 2, England.

Contribute to Your Profession

The Editorial Board of *The Physical Therapy Review* urges you to consider making a contribution to your journal and to your profession. Perhaps you have observed a particularly interesting case, or a series of cases presenting a new or different technic, or perhaps you wish to report on the results you have obtained on a new piece of equipment.

Listed below are suggestions which will help you in the preparation of your manuscript. For further help as to style, content, length, and illustrations, refer to one of the standard texts on the art of writing to be found in any library. Dr. Hellebrandt's article in this issue will prove very helpful, as well as the bibliography of books giving further information, which she appends.

(1) Papers should be typewritten and double-spaced. Both the original and one carbon copy should be mailed to the Review. (It is suggested that the author keep an additional copy with which to compare the galley proofs when these are mailed to him.)

(2) Full name and title of author and listing of all professional connections should be given.

(3) References and bibliography, numbered and listed at end of paper, should include:

(a) author's last name, first name, initial,
(b) title of book or article,
(c) name of publisher or magazine, and
(d) date of publication

(4) Illustrations should be unmounted, and should be numbered (in the margin, or in soft pencil on the back, in the case of photographs) to correspond to references in the text.

(a) Captions to appear under illustrations should be typed on a separate sheet and numbered to correspond to the illustrations.
(b) All photographs submitted should be glossy prints.
(c) All charts and drawings should be made on heavy white paper or white cardboard, and should be typewritten or made with India ink. (Graphs plotted on ordinary graph paper will not reproduce satisfactorily.)

(5) Papers should be mailed to Jane Carlin, Editor, The Physical Therapy Review, 1790 Broadway, Room 1316, New York 19, N. Y.

Index to Current Literature

Anterior Poliomyelitis

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Physical Medicine and Rehabilitation in Europe. Frank H. Krusen. Archives of Physical Medicine, January 1951.

Abstracts

Emergency Wooden Respirator

Gerald M. Cline, M.D., Homer O. Dolley, M.D., and Ralph C. Osborn, M.E., Bloomington, Ill. In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 145:7:485, February 17, 1951.

An "emergency" wooden respirator can be made and assembled in a few hours from materials usually obtainable in any community having a lumber yard, hardware store, and garage or small machine shop. The respirator can be built by a carpenter or cabinet maker with some assistance from a sheet metal worker, blacksmith or garage man, or a high school manual training class. The respirator may be constructed for hand operation; or if it is desired to operate the respirator by motor, a washing machine agitator mechanism or a combination of belts and pulleys having a total reduction ratio of 120:1 from the motor to the cam link may be used. This ratio is important to give the proper respiratory frequency of 12 to 20 cycles per minute.

A pamphlet which graphically sets forth its construction has been prepared and is available for distribution on application to the Council on Physical Medicine and Rehabilitation of the American Medical Association. The photographs, drawings, and specifications shown in the pamphlet are an accumulation of ideas on the various components offered as suggestions for making an emergency wooden respirator. Each community or group constructing a respirator of this type will have ideas of its own on improvisation of various components, perhaps simpler or more elaborate.

Home Care for Poliomyelitis

Emil D. W. Hauser, M.D. In QUARTERLY BULLETIN OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 25:1:21, Spring 1951.

This paper is concerned with the *art* of home care for poliomyelitis in contrast to the *science* of home care. The scientific approach is accurate, but general, and is concerned with ideas. A discussion of the art can be more specific and concerned with what is actually done, or with action and with individuals. This is based on the actual care given to patients at Passavant Hospital in Chicago.

Almost everything may be important in the care of a poliomyelitis patient, but we are most directly concerned with the restitution of the individual. This includes general health as well as rehabilitation of the part of the body affected by paralysis.

The majority of cases seen are referred from the contagious hospitals; of these, the highest percentage know no other treatment except home care. Only the most severe cases require further hospital care. Most cases are ambulant, and the program for their care is outlined to the physical therapist and to the family, as well as to the patient. Specific rules are laid down and the reasons for them are given.

Every effort is made to discontinue any therapeutic measure as soon as it is no longer essential for recovery. The sooner normal activity can be carried out safely, the sooner the specific exercises and treatments can be discontinued. When the patient is restored to normal, so that there can be no relapse due to weakness, he is dismissed.

For those ambulant patients who have some permanent disability with true paralysis, braces are used to carry out the maximum function and to prevent deformity. Surgery is performed when the child is older so that the brace can be abolished. In this way, the majority of the patients are cared for in their homes throughout the course of their treatment after the period of isolation is over.

The severely involved cases, the respiratory cases, and those with bulbar paralysis require hospitalization. The first objective is to save life, then to gain the maximum amount of power. Most of these cases can be freed from the respirator and can swallow, after which time they can be treated at home even though paralysis is severe. In some cases the paralysis is so severe that use of the respirator has to be continued at home, and for this the simplest type of chest respirator is used.

Arrangements for home care should be made whenever possible. It costs less, it can help relieve the critical shortage of hospital beds, and life at home is preferable to life in the hospital for a patient who must make a readjustment to everyday living. In his normal environment and stimulated by family relationships the patient usually shows a marked emotional and psychological improvement. Home care results in a more rapid social and financial rehabilitation. It makes certain that the maximum amount of benefit is obtained from hospital treatment at a minimal cost.

The Effects of Short-Wave Diathermy on Bone Repair

William J. Hutchison, M.D., and Billie D. Burdeaux, Jr., M.D., McKinney, Texas. In JOURNAL OF BONE AND JOINT SURGERY, 33-A:1:155, January 1951.

The use of diathermy to stimulate the repair of fractures has been advocated and condemned by many, but the actual effects of short-wave diathermy on bone repair have not been studied experimentally.

These experiments were done to determine the effects of short-wave diathermy in clinical or subclinical

doses on bone grafts and fracture healing. A standard short-wave diathermy machine was used throughout the investigation, and the following conclusions were reached:

Diathermy in repeated clinical doses causes a delay in the healing of fractures in rabbits and in the union of bone grafts in dogs. The new bone formation and callus are of poor structural quality.

Diathermy causes a decrease in the formation of osteoporosis following bone trauma in dogs and rabbits.

The continued use of diathermy in clinical doses causes edema of the skin, subcutaneous tissues, and muscles in rabbits.

There is marked stimulation of hair growth in rabbits within four days following the use of diathermy.

The use of diathermy causes a marked delay in the healing of surgical wounds in dogs and rabbits.

Physical Therapy and Rehabilitation in Multiple Sclerosis

George G. Deaver, M.D., New York. In THE CRIPPLED CHILD, 30:4:11, December 1950.

In treating the multiple sclerotic patient by physical therapy and rehabilitation there are three important facts to consider: (1) the etiology of multiple sclerosis is unknown; therefore, we cannot treat the cause; (2) in the majority of cases it is a progressive disease and degeneration may take place faster than rehabilitation, no matter what therapy is used; (3) there are periods of remission when the patient may be without any evidence of the disease, but there also are periods of exacerbation when the patient will be severely disabled. Because of these facts it is difficult to measure adequately the results of treatment. Frequently a patient has a remission and the type of treatment being given during that period is given the credit for the improvement. However, physical therapy is very frequently recommended for these patients, because the medical profession realizes that relaxing spastic muscles, strengthening weak muscles, retraining uncoordinated and ataxic movements, and teaching ambulation and self-care activities are the functions of those trained in physical therapy procedures.

When a physician prescribes physical therapy, it is essential that the physical therapist evaluate the symptoms, the extent of the disabilities, and what the patient can accomplish with his disabilities. With this information the physician and the physical therapist can outline a program and measure the results of treatment.

The forms of physical therapy most useful in treating the disabilities resulting from multiple sclerosis are the physical modalities and teaching the ambulatory and self-care activities of daily living which the patient is able to learn. The physical modalities which have been found most useful are massage, hydrotherapy, and exercise. There is no form of physical therapy as useful in the treatment of multiple sclerosis patients as active and passive movements.

Possibilities of Specific Prevention and Treatment of Poliomyelitis

W. M. Hammon. In PEDIATRICS, 6:687, November 1950. Abstracted in JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 145:7:518, February 17, 1951.

Hammon discusses the possibilities of passive immunization against poliomyelitis. He feels that this offers practical and theoretical advantages over active immunization. A vaccine for all immunologic types is not available and may never be available in adequate quantities or at a reasonable cost. Furthermore, if an inactivated vaccine is used, annual revaccination for the duration of life might be required.

The effectiveness of serum prophylaxis has been demonstrated in animals and has been given field trials in man, but the results are inconclusive. Gamma globulin from adults should contain antibody to all prevalent types and has been shown to be active in monkeys against three types of the disease. It has been used on a small scale in man as a prophylactic agent but not on an experimental basis. Gamma globulin, judging from epidemiological reasoning and experimental evidence, which is now inadequate, would not be expected to prevent infection, but should prevent clinical disease. If this proves to be true, it would permit the development of permanent immunity through inapparent infection, a decided practical advantage. Its use would be recommended only during epidemic years and for only the more susceptible age groups.

Since gamma globulin is now available, a carefully controlled field experiment should be done to determine its effectiveness. Once infection has occurred, there is no evidence that serum, gamma globulin, or other immunologic agent has any therapeutic or abortive effect. So far, no practical therapeutic or prophylactic antibiotic or chemotherapeutic agent has been developed against poliomyelitis; however, advances in this field lead to optimism.

Function of Erectores Spinae in Flexion of the Trunk

W. F. Floyd, B.Sc., P. H. S. Silver, M.B., London. In THE LANCET, No. 6647, p. 133, January 20, 1951.

Observations are described which show that full flexion of the spine is accompanied by relaxation of the erectores spinae. Consequently in this position further flexion is limited only by the intervertebral ligaments. It is thought that there are limits to the time for which the ligaments can support this tension—e.g., in sitting—just as there are limits to the tension which the ligaments can withstand in weight lifting.

Some clinical implications are described in backache and the mechanism of rupture of the annulus fibrosus.

National Program in Rehabilitation Must Be Expanded

Frank H. Krusen, M.D., Rochester, Minn. In MINNESOTA MEDICINE, 34: 1:47, January 1951.

Physical medicine and rehabilitation are combined today to include the employment of physical therapy, occupational therapy, psychosocial adjustment, and vocational retraining in an attempt to achieve maximal function and adjustment of the handicapped or disabled individual and to prepare him physically, mentally, socially, and vocationally for the fullest possible life compatible with his abilities and disabilities.

Our national leaders have urged extension of rehabilitation programs.

"The investment in rehabilitation is an investment in the greatest and most valuable of our possessions, the conservation of human resources." This was the opinion of Bernard M. Baruch when he founded the Baruch Committee on Physical Medicine in 1944.

If our nation is to be successful in providing adequate facilities for restoration of all our disabled citizens we must double, redouble, and redouble again our pioneering, voluntary programs to provide service to the handicapped; to train personnel to care for the disabled; and to provide medical research in methods of restoration following disease or injury.

Poliomyelitis: Six-Year Study of Cases at Children's Hospital, San Francisco

H. E. Thelander, M. Sehring, and E. B. Shaw. In PEDIATRICS, 6:557, October 1950. Abstracted in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 145:7:518, February 17, 1951.

Thelander and her associates cite a previous report in which they reported clinical observations on poliomyelitis cases from the Children's Hospital in San Francisco over the six-year period, 1943-1949. They discuss the sources and sampling of the case material and analyze some specific observations.

This series of 453 cases does not present a valid cross section of cases. Patients from San Francisco are usually admitted early, or when the disease is suspected. Thus, these cases include all degrees of severity. The nonlocal cases, however, represent somewhat severer cases, including more difficult problems in diagnosis and those requiring special methods of treatment—such as artificial respiration, tracheotomy and care of circulatory failure, and urinary retention. Age, economic status, and the high proportion of females are other factors in which this material differs somewhat from a truly representative cross section of poliomyelitis cases.

Sore throat, tonsillitis, and gastroenteritis have been considered by many observers as symptoms of invasion by the poliomyelitis virus. The authors challenge this concept and suggest that a far more likely hypothesis is that other infections may serve to convert latent and inapparent infection into obvious disease of the central nervous system. Many authorities include these evidences of preliminary infection as the initial component of biphasic (dromedary) poliomyelitis. This concept appears especially inapplicable to those instances in which preliminary disease differs sharply in symptomatology from that usually characterizing invasion of the central nervous system. There is much evidence that the poliomyelitis virus is widely distributed during epidemics and that the virus may frequently produce inapparent and completely latent infection, which may be converted into active disease by a variety of factors, including unrelated infections, which increase the susceptibility of the central nervous system of the host.

The value of pooled, irradiated, human plasma in therapy is not great, but statistically this is almost impossible to prove because a weakly effective agent is applied in the treatment of an infection that has an extremely variable outcome. Although nonparalytic poliomyelitis is believed to be frequent, the authors believe that if diagnosis is restricted to cases with definite clinical and laboratory observations, only a small proportion will completely escape paralysis, though this paralysis may be minimal and may disappear before the end of the two weeks of hospitalization.

A Home Play and Occupational Program for the Bedfast Child; The Counterpane Course

Francis F. Schwentker, M.D., Anne Felts Epperson, M.A., and Archibald Hart, Ph.D., Baltimore. In PEDIATRICS, 7:1:44, January 1951.

The value of recreational therapy for children whose condition requires long continued bed rest or confinement at home is universally accepted. Hospitals and convalescent homes have met the problem by initiating play or occupational programs. Under the best conditions, they are conducted by trained workers who are able to understand the personalities and problems of children.

The South's Service to the Crippled Child

William Littell Funkhouser, M.D. In SOUTHERN MEDICAL JOURNAL, 44:2:124, February 1951.

The United States Census Bureau estimated in 1944 that there were over forty-six million persons in this country under twenty years of age. One-third are in the Southern states. It is almost impossible to determine the number of children in the United States eligible for crippled children's service, but it has been estimated at twenty-six and a half million.

This report covers the District of Columbia and those states comprising the territory of the Southern Medical Association. All of these have programs under the State Crippled Children's Services which are financed jointly by state and Federal funds and are administered locally by designated agencies.

Federal grants for the Crippled Children's Services are to be doubled for 1952. The increased grants will be used to extend present services to reach more children, to care for handicaps where no public service is available, and to train more workers. It will also help to cover the increased cost of hospitalization, which has risen in ten years from $6.42 to $18.06 per day per patient.

The program in the various states does not operate under the same state agency. Nine states function under the Department of Health; three operate under the Department of Public Welfare; two under the Department of Education; two under Children's Commission; and one under the Department of Public Assistance.

Every state and the District of Columbia has service for children with orthopedic and plastic defects, also for cerebral palsy and congenital abnormalities.

Eight states care for congenital hearts; nine have programs for rheumatic hearts; three states care for speech and for hearing; five states serve the blind; two, mental defects; and one, brain tumors. It can be seen that the majority of the Southern states care for only a small percentage of crippling conditions under the broader interpretation of the term.

Of the medical personnel, all states have orthopedic, pediatric, and nursing service; nine have neurologists; three, plastic surgeons; four, dentists; one has a doctor of physical medicine; and six have cardiologists.

Of the auxiliary personnel, three states have a nutritionist; eight have teachers for speech therapy; fifteen have physical therapists; fifteen have medical social workers; and seven have psychologists.

A Two-Step Test of Exercise Tolerance in Intermittent Claudication

Milton Kissin, M.D., Julius J. Stein, M.D., and Ralph J. Adleman, M.D., New York City. In ANGIOLOGY, 1:2:141, April 1950.

A two-step stair climbing test was found to be a satisfactory and convenient measure of exercise tolerance in intermittent claudication. The patient walked back and forth over a set of steps until pain appeared in the leg. The number of trips made over the steps was recorded as the exercise tolerance. The first appearance of pain in the calf was taken as the end point.

The exercise tolerance when repeatedly done on a single day, was found to be constant. Similarly, the day-to-day measurement of exercise tolerance was found to be constant. This method of measurement is useful, therefore, in acute or chronic experiments on intermittent claudication.

Evaluation of Treatment in Intermittent Claudication

J. T. Shepherd, M.B., M.Ch. In BRITISH MEDICAL JOURNAL, No. 4694, p. 1413, December 23, 1950.

Any effective treatment of arteriosclerosis must increase the distance a patient can walk, either by increasing the blood flow to the affected muscles or by reducing the pain which occurs on exercise. Direct measurement of the distance a patient can walk is the common method of assessing treatment.

A method is described which employs an ergograph to determine the amount of work a patient can perform and a venous occlusion plethysmograph to enable the blood flow through the calf to be measured after the exercise. The use of this method in the evaluation of treatment in intermittent claudication is discussed.

The Fundamental Treatment of Rheumatoid Arthritis

J. J. R. Duthie, M.B., F.R.C.P.Ed. In THE PRACTITIONER, 166:991:22, January 1951.

The stage at which active movements should begin will depend upon the response to general and local rest. In the upper limbs, physical therapy should be prescribed only after pain and swelling have begun to subside. In the lower limbs, the period of complete immobility can be more prolonged, muscular function being maintained by static contractions of thigh and calf muscles with splints in position. The patient should be taught these exercises and instructed to perform them at frequent intervals throughout the day.

Physical therapy is used to supplement active forms of treatment. Wax baths are beneficial in reducing stiffness in the small joints of the hands and feet. Faradic footbaths may be helpful in initiating activity in the intrinsic muscles of the feet. Residual pain may be eased by radiant heat, infra-red rays, or short-wave diathermy. It must be clearly understood, however, that the value of passive forms of therapy is strictly limited. Power and stability can be restored to damaged joints only by skillfully graded activity. In cases of any duration, permanent damage will limit function, and patients must be warned that their activities must be kept within the tolerance of their joints.

When the patient has attained the maximum degree of improvement, certain clear-cut instructions must be given. The limits of physical activity must be clearly defined for those patients with significant residual disability. Instruction in simple home physical therapy and remedial exercises should be given.

Fifty Years of Progress of Physical Medicine and Rehabilitation in New York State

Samuel S. Sverdlik, M.D., Donald Covalt, M.D., and Howard A. Rusk, M.D. In NEW YORK STATE JOURNAL OF MEDICINE, 51:1:90, January 1, 1951.

There have been dramatic changes in the medical and social scene in the past fifty years. Prior to World War I the major concern of the community in relation to the disabled was with the crippled child. During World War II physical medicine and rehabilitation received its greatest impetus.

Although it is one of the oldest therapeutic modalities known to medicine, physical medicine and rehabilitation is the newest medical specialty recognized by the Council on Medical Education and Hospitals of the American Medical Association. Due to the increasing knowledge of electronics and biophysics, a more comprehensive understanding of the biologic and biomechanical principles involved in the pathologic processes, and the physiologic and vocational problems of the disabled and chronically ill, this specialty has made more rapid strides in the past decade than in all time heretofore.

An Improved Abduction Exercise Splint for the Shoulder

Edward J. Coughlin, Jr., M.D., Williamstown, Mass. In JOURNAL OF BONE AND JOINT SURGERY, 33-A:1: 267, January 1951.

The author does not claim credit for devising this splint, but mentions that the original model had been seen by him at a prisoner-of-war camp in southern France. The author contacted the originator of the apparatus, Dr. Georg Neubauer, of Graz, Austria, who forwarded his own modifications of the original splint. In the modification of the original splint, the thorax is supported on both sides, which gives more adequate fixation to the apparatus and prevents it from moving in the process of abduction. In this way, one gets the maximum degree of abduction at the shoulder without untoward motion of the apparatus itself.

Music as an Adjunct to Therapy

Eugene J. Taylor, New York. In THE CRIPPLED CHILD, 30:4:8, December 1950.

Music has long been used in the treatment of disease. Music was utilized as a highly specific form of therapy among the American Indians and various rhythms and songs were prescribed by the medicine men for treatment of specific ills.

Probably partially as a result of the wide use of music in military hospitals during the war, there has been a great increase in the use of music in hospitals in recent years. The greatest use of music in medicine, however, is in neuropsychiatric hospitals, Veterans Administration hospitals, and some civilian hospitals, as a medium for patients' activity. The only prescribed activities which are considered as specific therapy are the use of music in relaxation and the development of coordination with patients with primarily neurological disabilities, conducted in conjunction with physical therapy; and group and individual singing with aphasics and other patients with speech disorders, conducted in conjunction with speech therapy.

Treatment of Fibrositis in the Neck and Shoulder with Microthermy (Radar)

George Darwin Wilson, M.D., Asheville. In NORTH CAROLINA MEDICAL JOURNAL, 12:1:19, January 1951.

Thirty-eight cases of fibrositis in the neck and shoulder (four primary and thirty-four secondary) were successfully treated by exposure to microwaves (radar). The common triad of findings in this series of cases was: (1) pain, (2) hypotension, and (3) involvement of the sensory and motor nerves of the upper extremity. Objective criteria of recovery were restoration of full joint motion, as measured by goniometry; return of normal sensation over areas of paresthesia mapped out by pin scratch; and an increase in the power of the hand grip, as determined by a hand dynamometer.

Microthermy was applied by Director B at a distance of two inches from the bare skin. Treatments were directed to each side of the neck anteriorly, and to the back of the neck, each site being exposed for ten minutes. Oral temperature was unchanged by thirty minutes' exposure to microthermy, and no burns or undesirable reactions were encountered.

The Medical Care of the Elderly

T. N. Rudd, M.D., London. In THE LANCET, No. 6646, p. 101, January 13, 1951.

No one who reads the medical papers can fail to be impressed by the number of careful reports on conditions of the elderly, sick and healthy, in hospitals and in their own homes throughout the country. Conditions of neglect under which the aged live have been noted in this country and in the United States of America.

The ultimate problems for scientists are the reasons for aging, and its prevention. These may never be solved, but at least we can learn more of the variations of disease in old age. Important changes of attitude are now becoming general: rehabilitation, especially, has come right to the fore, but it can only be successful if based upon a sound and complete diagnosis. Family physicians with a large list of older patients need increased diagnostic facilities which usually cannot be met by the general hospital outpatient department; geriatric outpatient departments will be required, preferably in geriatric hospitals. In some hospitals, where there is no physical therapy department, the geriatric outpatient department should be linked up with an outside physical therapy clinic. However, massage should be given by personnel on the geriatric staff whose methods are geared down to the needs of the elderly.

Measurement of Whirlpool Temperature, Pressure, and Turbulence

F. A. Hellebrandt, M.D., Sara Jane Houtz, M.S., and Robert N. Eubank, Richmond, Va. In ARCHIVES OF PHYSICAL MEDICINE, 32:1:17, January 1951.

The ultimate objective of this study is to determine the physiological effects of the whirlpool bath so that we may evaluate the rationale of its current technic of application. Are the results achieved worth the cost of attaining them? In attacking this problem, it has been our major premise that the physiological effects of the device under study cannot be estimated reliably unless the operator can control and measure the variables thought to be the cause of the phenomena under observation. Therefore, the measurement of whirlpool temperature, turbulence, and pressure, the subject of this article, is the first step in the solution of a practical problem which has economic as well as medical implications.

The history of the application of hydrotherapy by the agitation of water in an extremity bath is reviewed; the factors affecting the "dosage" of this modality are discussed. Methods of measuring whirlpool temperature, pressure, and turbulence are presented. Equipment designed to permit quantitative measurement of these variables is described.

The evidence available from extensive exploratory observations suggests that the agitational patterns produced in whirlpools of various types differ significantly and that those in a given piece of equipment are far from uniform at all depths and in all positions. Further study should be given to their physiological effects.

Acrosclerosis

T. R. Littler, M.B., and S. Canter, M.D., Liverpool. In THE LANCET, No. 6647, p. 139, January 20, 1951.

Acrosclerosis is relatively rare, and there is much conflict of opinion about whether it is an independent clinical syndrome or not. Acrosclerosis, scleroderma, scleroderma adultorum, and dermatomyositis have been grouped together as dermatosclerosis, because hardening of the skin is common to all of them at some time during their course. The earliest manifestations of acrosclerosis are the Raynaud phenomena, and until the skin changes appear the diagnosis of acrosclerosis does not arise. Superficial examination may lead to a momentary confusion with rheumatoid arthritis. Raynaud phenomena are seen in both conditions, and the ulnar deviation and position of flexion of the fingers are common to both. Closer examination, however, confirms that the changes are not primarily articular or periarticular, and any deformities that have arisen are due to the contraction of the skin over the underlying tissues.

There is no satisfactory treatment for acrosclerosis. Acrosclerosis may partly regress, even after many years. On general principles most workers recommend residence in a dry and equable climate, and a well-balanced nutritious diet. Protection of the fingers from trauma, including immersion in cold water, and the avoidance of psychological trauma are also advised. Physical therapy is important; radiant heat and massage, together with active and passive movements, encourage the patient and should be tried in all cases.

Treatment of Intertrochanteric Fractures of the Femur by Internal Fixation

G. P. Arden, M.B., F.R.C.S., and G. J. Walley, B.M., F.R.C.S. In BRITISH MEDICAL JOURNAL, No. 4688, p. 1094, November 11, 1950.

Only during recent years have surgeons been stimulated to treat intertrochanteric femoral fractures by internal fixation as a means of obviating the long inactivity and bed-stay of the aged patient. Operative treatment has been advocated for the following reasons: (1) early ambulation; (2) a more accurate and stable reduction of the fracture; (3) improved final function; (4) fewer general complications; (5) shorter hospital stay and quicker turn-over; and (6) lower mortality.

After-treatment. No external support for the leg was used, the physical therapist starting active exercise of the affected hip twenty-four hours postoperatively. General leg and breathing exercises were also given. Patients were encouraged to get out of bed and sit in a chair within twelve days, and, two weeks after the operation began, walking on crutches without weight bearing was begun. At the end of four weeks they were discharged home and attended the nearest physical therapy department twice weekly for exercises and the fracture clinic for follow-up.

When radiographs showed satisfactory union, the patient began weight bearing; this was usually eleven weeks after injury.

Management of Decubitus Ulcers in the Paraplegic Patient

Gordon S. Letterman, M.D., Charles S. Wise, M.D., and William Carey Meloy, M.D., Washington, D. C. In ARCHIVES OF PHYSICAL MEDICINE, 32:1:34, January 1951.

Physical therapy methods are of considerable value in the prevention of decubitus ulcers. The use of luminous heat for thirty minutes twice daily to the more vulnerable areas will maintain more adequate vascular supply to skin and subcutaneous tissues. Care must be exercised in the application of heat to these areas, however, because of the anesthesia present, which would enhance the possibility of a burn. General application of ultraviolet irradiation for a minimal erythemal response, later followed by increased pigmentation, affords increased skin resistance to the formation of decubitus ulcers.

Physical reconditioning and train-

ing are highly valuable in the preoperative period. Exercises to provide strong upper extremity and trunk muscles should be started early. In most instances the patient can be and is best instructed in the use of braces and crutches before any plastic repair is done. Exercises increase the general and local circulatory efficiency. The successful rotation of a skin flap depends upon this local efficiency.

Early preoperative and postoperative ambulation has been found to be probably the most important single physical therapy aid in hastening healing processes. The effects of ambulation on nitrogen balance are well known, and our clinical experience indicates that the healing of plastic surgical procedures occurs much more rapidly in the semiambulant patient than in the patient who has been at prolonged bed rest.

On the seventh to the tenth postoperative day the patient may be braced and lifted from the cart to the floor without placing excessive pressure on the operative site. Full activity is resumed gradually. Very frequently ambulation with braces and crutches is permitted for a period of several weeks before the patient is allowed to sit in a wheel chair. During this period he is maintained on either a suitable Stryker frame or on a bed during the time that he is not ambulating. This is of particular importance after the repair of ischial decubitus ulcers.

Respiratory Failure in Poliomyelitis: A Simple Method for Its Recognition and Control

Walter F. Stafford, Jr., M.D., and Ramsdell Gurney, M.D., F.A.C.P., Buffalo, N. Y. In ANNALS OF INTERNAL MEDICINE, 34:1:203, January 1951.

A simple, graphic method of evaluating certain aspects of respiratory function in poliomyelitis is presented. By the use of this method it is possible to anticipate respiratory failure before it is evident clinically. The necessity for measuring tidal and minute volumes during artificial respiration is emphasized.

During artificial respiration, pulmonary complications can be demonstrated by this method before any recognizable clinical signs are present.

This method gives a satisfactory indication of return of respiratory function and serves as a guide for evaluation of the patient's ability to withstand removal from the respirator.

Obstetrical and Gynecological Aspects of Backache

Robert F. Lamar, M.D., Kansas City, Mo. In INDUSTRIAL MEDICINE AND SURGERY, 20:1:19, January 1951.

Backache in pregnancy is an extremely common complaint and, while its nature is most often orthopedic, the obstetrician usually is called upon for palliation. The increase in abdominal content causes a shift in the center of equilibrium in the pregnant woman that is of such a degree as to require increasingly exaggerated postural adjustments. Joint strain low in the back is an obvious concomitant, and therapy aimed at approaching a more normal body posture is of value. Simple instruction as to standing straight and habitually holding the buttocks together so as to increase abdominal tone may help considerably. High and narrow shoes should be replaced, and a hard bed almost always is helpful. Local heat is a useful measure in the more severe cases, some of which may require adhesive strap support.

Foreign Abstracts

Spastic Pes Varus. *By R. H. von Muralt, M.D., Orthopedic Surgeon, Berne, Switzerland. In Der Heilmasseur Physiopraktiker, Vol. 114, October 1950. (Translated and abstracted by Joseph M. Breuer, staff physical therapist, Hospital for Joint Diseases, New York City.)*

Well-organized teamwork of orthopedic surgeon, X-ray technician and physical therapist is a prerequisite for treatment of spastic pes varus. A correct diagnosis can not be made by clinical observation alone, since only X rays will distinguish this from other similar deformities by showing bony changes (arthronotic reactions), usually in the joint space between astragalus and talus. These, together with the spastic manifestations of the calf musculature, manifest themselves in immobility and stiffness of all the metatarsal joints (nutcracker effect). Pain may be present over the area of the lateral malleolus and a characteristic, stiff gait may be observed, especially after lengthy weight bearing. In contradistinction to other varus deformities, the spastic variety will maintain the same clinical appearance whether or not weight bearing takes place and, furthermore, will affect the mediolateral rather than the plantar-proximal part of the foot.

Etiology may be either traumatic or inflammatory, causing cartilaginous changes in the joint space, often accompanied by ossification of the edges and resulting malformation of the talus. Spasticity of the gastrocnemius-soleus group follows secondarily, constituting nature's way of affecting arthrodesis of the center of disturbance (ossification having failed).

Treatment, therefore, should consist of the triple arthrodesis of Duroquet-Lovay, rather than tenonectomy, in severe cases. Sometimes forced motion under anesthesia will suffice. A plaster cast should be worn for at least two months, followed by built-in arches to keep foot in supination. Intensive and lengthy physical therapy must follow, consisting of baking (luminous arc), sedative massage, mild and extremely slow stretching, if necessary, accompanied by curare iontophoresis.

Therapeutic Exercises in Compression Fractures of Vertebrae. From the Physical Therapy Department, Southern Hospital, Rotterdam, The Netherlands. In Nederlands Tijdschrift voor Heilgymnastiek, Massage, en Physiotechniek, October 1950, No. 10. *Translated and Abstracted by Anthony De Groot, Chief, Physical Therapy, Veterans Administration Hospital, Northport, Long Island, N. Y.*

The exercises described here are of use only in compression fractures. These fractures occur mostly in the lumbodorsal part of the spine. In the lumbosacral region the fractures occur most frequently from D 12-L1. These fractures often occur in more than one vertebral body, sometimes in four or five bodies.

The treatment adopted at this hospital is first to place the patient in a position of hyperextension and then apply a plaster cast. The aim here is to separate the vertebral bodies from the compressed body or bodies and to prevent flexion of the spine. As the anterior ligament remains intact, it forms a sheath to aid in the restoration of the spinal column to its original state. During callus formation the spinal column regains its original form, the cast preventing flexion and pressure on the injured part. After the patient is placed in the cast, an X ray is taken to check on the result. Occasionally it happens that in spite of the hyperextension there is still insufficient space. The compression in such a

case may become permanent and the patient may have to remain in the cast for as long as six months. In cases where the results of hyperextension are good, and the spinal column has regained its original form, the cast may be removed in as early as three months. Even in cases where the compression with its wedge shape remains, therapeutic exercises given correctly should prevent a kyphosis. It will be readily understood, therefore, that while it is important to give correct exercise in all cases it becomes of the utmost importance in those cases where the compression remains.

According to Dr. Jones: "The best spinal brace in the world is the musculature of the patient's own spine; the muscles should be so powerfully developed that it would be an obvious insult to add the support of a spinal brace."

Exercise is started as soon as the cast is thoroughly dry, that is, after about five days. When the cast is removed, the strength of the back muscles should be at least as great as before the injury. In addition to strengthening the back muscles, exercise is useful in preventing adhesions and joint stiffness. Breathing exercises are also important because, the thorax being in a cast, the patient's breathing tends to become shallow. The physical therapist should be alert to prevent this. Exercises in diaphragmatic and costal breathing are needed to obtain good ventilation of the lungs, as this will help to prevent stiffness of the joints used in breathing, adhesions, and lung inflammations. This is of special importance in elderly patients.

The exercises are divided into two main groups: (1) exercise while the patient is in the cast, and (2) exercises given after the cast is removed.

Exercise given while the patient is in cast:

(1) exercise to back muscles
(2) breathing exercise
(3) arm exercise
(4) leg exercise
(5) abdominal exercise

In the exercise of back muscles, only extension movements are indicated. Flexion, rotation, and side bending are contraindicated.

Exercise given after the cast is removed:

(1) mobilizing exercises
(2) all exercises mentioned in first group
(3) exercise with weights
(4) exercise in all axes

The Aftercare of the Hip Joint Following Arthroplasty

E. J. Hissink and P. M. Zandboer, Utrecht, Holland. In NEDERLANDS TIJDSCHRIFT VOOR HEILGYMNASTIEK, MASSAGE, EN PHYSIOTECHNIEK, November 1950. *Translated by Yvonne Kray, Physical Therapist, The Institute for Physical Medicine and Rehabilitation, New York City.*

The reason for performing an arthroplasty is usually to reestablish motion in an ankylosed hip joint. However, we also see cases quite frequently in which walking presents a problem, due to instability of the hip joint. (The patients show a positive Trendelenburg.) The form of arthroplasty used here is that whereby a new socket is made instead of the old acetabulum.

Before Operation

In most cases requiring surgery we are dealing with an arthrosis deformans, in which pain and limitation of motion are the main symptoms. The pain causes a protective hypertonicity of certain muscle groups; whereas other muscles show atrophy, due to disuse and to circulatory changes. Atrophy of the gluteals is present. The adductors and the iliopsoas show hypertonus, which will result in a flexion and adduction contracture. The lumbar spine now substitutes for movements normally performed by the hip joint. This puts an unusual strain on the low back and results in myogelosis of the lumbar musculature.

Postoperative Therapy

Bed positioning is the first aspect of our treatment. The position of the leg in relation to the pelvis is all important. The patient is taught to keep the leg in abduction and internal rotation. This position is used during rest (with the aid of sandbags), and as a starting position for exercises. Massage is used in the early stages—stimulating to the gluteals, quadriceps, and abductors; sedative to the adductors. This is followed by active assistive and active exercises. These exercises consist of flexion, abduction, internal rotation, and extension of the hip.

After a week of exercising in bed, pool treatments are started—first non-weight-bearing, then on hands and knees, and finally, weight-bearing. It is important to make sure that the patient is distributing his weight evenly, thereby making full use of the gluteals and the quadriceps.

When starting gait training outside of the pool, it is of particular importance to pay attention to the correction of the positive Trendelenburg sign, which will indicate that the poor gait employed by the patient prior to surgery has become habit.

Passive exercises should be avoided because:

(a) They do not develop muscle strength.

(b) Damage can be done to the joint, resulting in bleeding and adhesions.

(c) The joint is still unstable in the early postoperative stage and subluxation may occur.

Physiotherapy in the Slate-Quarrying Industry. *By Alan Lowry Porter, M.C.S.P., Blaenau Ffestiniog, Merioneth, Wales. In Physiotherapy, Journal of the Society of, 37:2:32, February 1951.*

Blaenau Ffestiniog is one of the main centers of the slate-quarrying industry of North Wales, and some 1,200 men are now employed in the quarries here. The work is extremely heavy, and much of it dangerous.

The quarrymen themselves were responsible, through their Union Lodges, for initiating the building of a Physiotherapy Department in this town, though its scope has now been greatly enlarged by the National Health Service. The conditions from which the majority of quarrymen attending the Department suffer are caused by their work, and include stiffness of joints and weakness of muscles following fractures or dislocations; wounds, which are often caused by catching the hands or the fingers in working machinery; acute fibrositis, often of the lumbar muscles; osteoarthritis of the shoulder, hip, or knee joints, and strained or torn muscles—most commonly in the lumbar region.

Acute cases are not sent for treatment sooner than a week after injury and orthodox treatments give excellent results. The writer does not, however, believe in using strenuous or strongly resisted exercises, for there is a tradition here of using walking and climbing as the last stage of treatment; given reasonable common sense, this would appear to be a practice far more effective than anything which could be done in a gymnasium.

In addition to the above measures, the need for a real understanding of

the work being done in the quarries was emphasized. It is often necessary to go to some personal inconvenience to get a satisfactory result, but it is always well worth the trouble, as the following example illustrates. A quarryman was suffering from a strain of the right abdominal wall which proved quite resistant to treatment. It was, therefore, necessary to visit the man at work and he was found operating machinery controlling an aerial ropeway used for tipping quarry rubbish. He was continually having to stand almost on one leg in order to operate a foot lever moving in a vertical plane between one and two feet from the ground. This method of work was obviously causing the strain, and by making a small platform out of pieces of slate covered with sacks, it was contrived to have the quarryman standing almost level when operating this lever. With the cause of the trouble thus removed, the condition very quickly cleared up. The writer finds that by using such measures much fruitless work is saved in the department.

Book Reviews

Recovery from Aphasia. *By Joseph M. Wepman, Clinical Instructor in Otolaryngology (Speech Pathology), and Lecturer in Psychology, University of Chicago. Price, $4.50. 7 illus.; 20 tables. The Ronald Press Company, 1951.*

This book affords a comprehensive presentation of the treatment of aphasia and should prove of value to therapists dealing with this type of disorder. The material is divided into three sections in which etiology, characteristics, and classifications of aphasia are discussed; extensive clinical research done in the field is reported upon, much of which was conducted during the last World War; and therapeutic procedures are outlined and evaluated.

The authors' approach is scientific, practical, and broad in scope. They hypothesize that aphasic disorders reflect themselves in intellectual, affective, and behavioral changes involving the personality as a whole, a concept which will have special appeal for clinicians generally. Treatment is directed toward alteration of these personality Gestalts and is not limited to eradicating speech disorders independently. The authors likewise state that the most rapid and permanent recovery from aphasia is accomplished with the cooperative efforts of experts from other fields—such as neurology, psychiatry, and psychology. An example of this is the idea they put forth of the necessity for changing a patient's self-concept of himself, rather than changing the therapist's concept of the patient, a procedure familiar to psychiatry. Supplementary knowledge and teamwork of this nature among specialists assures treatment of the "whole" patient rather than alleviation of isolated localized symptoms and has been shown to be a sound method of practice in other disorders also.

A considerable portion of the book is devoted to the technical aspects of treatment and is most applicable to speech therapists themselves. In addition to neurological and psychological considerations, steps are outlined for the initial phases of speech re-training and the later stages of therapy, with illustrative examples. Factors such as initial level of intelligence upon treatment, optimal time to start training, etc., are mentioned in relation to prognosis and degree of therapeutic success. The limitations of psychological tests, including the Rorschach inkblot test, in the diagnosis of aphasia are also given.

Claims of recovery are conservative in nature, although the authors give assurance that the incidence of improvement from aphasic disorders is high among brain-injured patients, if these technics are utilized. Included in the list of those for whom the book is written are nurses, educators, social workers, and medical specialists, in addition to therapists more directly concerned in a technical sense. The book should prove of interest to these groups and to others who advocate a dynamic approach to the treatment of disturbances in general.

Reviewed by BESSIE B. BURGEMEISTER, PH.D., *Research Assistant in Neurology, Columbia University.*

Recent Advances in Physical Medicine. *Edited by Francis Bach, M.A., D. Phy. Med.; Member of the Council of British Associates of Phy. Med.; Member of the Empire Rheumatism Council; Physician, Rheumatic Unit, St. Stephen's Hospital, Chelsea; Physician in Charge, Phy. Med. Dept., Mt. Vernon Hospital; Consultant in Phy. Med., Stoke Mandeville Hospital (Ministry of Pensions). Hard cover. Price, $4.50. Pp. 490, with 93 illus. The Blakiston Co., Philadelphia and Toronto, 1951.*

This book is one of a series of volumes on recent advances originally published by J. and A. Churchill, Ltd., London.

This book represents a comprehensive collaboration on many phases of physical medicine as practiced today. The editor is to be congratulated on his method of presentation—a more practical concept than is usually encountered in physical medical works. The presentation displays much thought on the part of one who is living the present daily problems of physical medicine. He has brought into the work, through collaborators, the collective thinking of many experienced persons in the field.

This is not the type of book which can be reviewed except in a most general way, as the multiplicity of subjects, many requiring detailed scientific discussion, are often much involved. The scientific data has been carefully sifted, and the various subjects are covered with as much brevity as possible and still carry their useful message.

The reviewer was particularly impressed by the description of the physician practicing physical medicine, and such subjects as concerned themselves with the aforementioned problems of the day.

For students of orthopedic nursing and physical and occupational therapy, and physicians in training for careers in physical medicine this book is a "must."

The book is published in convenient 6 x 8 inch size, contains 480 pages of clearly printed text on semi-gloss, easy-to-read paper. Many illustrations are interspersed, both straight line and half tones, enhancing the text where description in words would be difficult.

Author and publisher are to be congratulated on this offering.

Reviewed by WILLIAM BENHAM SNOW, M.D., *Director of Physical and Occupational Therapy, Columbia-Presbyterian Medical Center, New York City.*

SCHOOLS OF PHYSICAL THERAPY

Approved by the Council on Medical Education and Hospitals of the American Medical Association
Graduates of these schools are eligible for membership in the American Physical Therapy Association

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
CALIFORNIA					
[1]Childrens Hospital Society, Los Angeles (in affiliation with University of California, Los Angeles)	Samuel S. Mathews, M.D. Sarah S. Rogers	a[3]-b[3]-d-e g[4]	14 mo 4 yrs	Sept	Certificate Degree
[1]College of Medical Evangelists, Loma Linda	F. B. Moor, M.D. R. Wm. Berdan	a-b-c-d-e g	15 mo 4 yrs	Sept	Certificate Degree
[1]Univ. of So. California, Los Angeles	Charles L. Lowman, M.D. Charlotte W. Anderson	a-b-d-e g[4]	14 mo 4 yrs	Sept Sept-Feb	Certificate Degree & Cert.
[1]Univ. of California Medical School, San Francisco	Lucile M. Eising, M.D. Margery Wagner	d-e g	12 mo 4 yrs	Sept	Certificate Degree
[1]Stanford Univ., Palo Alto	Wm. Northway, M.D. Lucille Daniels	a-d-e-f g[4]	12 mo 4 yrs	Jan-June or Sept	Certificate Degree
COLORADO					
[1]Univ. of Colorado Medical Center, Denver	Harold Dinken, M.D. Mary Lawrence	a[3]-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
ILLINOIS					
Northwestern Univ. Medical School, Chicago	Emil D. W. Hauser, M.D. Gertrude Beard	a-b[3]-d-e	12 mo	Oct	Certificate
IOWA					
[1]Univ. of Iowa, Iowa City	W. D. Paul, M.D. Olive C. Farr	b-e	12 mo	Sept	Certificate
KANSAS					
[1]Univ. of Kansas School of Medicine, Kansas City	Donald L. Rose, M.D. Lilyan G. Warner and Ruth Monteith	a-b-d-e g[4]	12 mo 4 yrs	Feb-Sept	Certificate Degree
MASSACHUSETTS					
Bouve-Boston School of Physical Education, in affiliation with Tufts College, Medford 55	Howard Moore, M.D. Constance K. Greene	g[4]	4 yrs	Sept	Degree
Simmons College, Boston	Wm. T. Green, M.D. Arthur L. Watkins, M.D. Shirley Cogland	a[3]-b-d-e g[4]	16 mo 4½ yrs	Sept	Certificate Degree
Boston Univ.-College of Physical Education for Women, Sargent, Cambridge	Kenneth Christophe, M.D. Adelaide McGarrett	a-b-d-e f-g[4]	12 mo 2 or 4 yrs	Sept	Certificate Degree
MINNESOTA					
[1]Univ. of Minnesota, Minneapolis	Frederic J. Kottke, M.D. Ruby M. Green	d-f-g[4]	2 yrs	Sept	Degree
[1]Mayo Clinic, Rochester	Earl C. Elkins, M.D. Harry Keown	a-b-c-d-e	2 yrs	Sept	Certificate
MISSOURI					
[1]Washington Univ. School of Medicine, St. Louis	Sedgwick Mead, M.D. Beatrice F. Schulz	f-g[4]	2 or 4 yrs	Sept	Degree
[1]St. Louis Univ. School of Nursing, St. Louis	A. J. Kotkis, M.D. Sr. Mary Imelda	f-g[4]	2 or 4 yrs	Jan-Sept	Degree

Name and Location of School	Medical Director and Technical Director	Entrance Requirements	Length of Course	Classes Start	Certificate, Degree, or Diploma
NEW YORK					
Albany Hospital, Albany (in affiliation with Russell Sage College, Troy)	John W. Ghormley, M.D. Catherine Graham	a-b-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
[1]Columbia Univ., New York	Wm. B. Snow, M.D. Floy Pinkerton	a-b[3]-e f	12 mo 2 yrs	Sept	Certificate Degree
[1]New York Univ., School of Education, New York	George G. Deaver, M.D. Elizabeth C. Addoms	a[3]-b[3]-d-e g[4]	12 mo 4 yrs	Sept	Certificate Degree
NORTH CAROLINA					
[1]Duke Univ., School of Medicine, Durham	Lenox Baker, M.D. Helen Kaiser	a[3]-b[3]-d-e	15 mo	Oct	Certificate
OHIO					
[1]Cleveland Clinic, Cleveland	S. G. Gamble, M.D. Mildred Heap	a-b-d-e	12 mo	Oct	Certificate
PENNSYLVANIA					
[1]D. T. Watson School of Physiatrics, Leetsdale	Jessie Wright, M.D. Kathryn Kelley	a[3]-b[3]-d-e	12 mo	Oct	Diploma
[1]Univ. of Pa. School of Auxiliary Med. Serv., Division of Physical Therapy, Philadelphia	George M. Piersol, M.D. Dorothy Baethke	e g[4]	12 mo 4 yrs	Sept-Feb Sept	Certificate Cert. & Degree
TEXAS					
[1]Hermann Hospital, Houston	Oscar O. Selke, Jr., M.D. Mary Elizabeth Kolb	a-b-d-e	12 mo	Oct	Certificate
[1]Univ. of Texas School of Medicine, Galveston	G. W. N. Eggers, M.D. Ruby Decker	a-b-e d	12 mo	Jan	Certificate Degree
VIRGINIA					
[1]Med. College of Va., Baruch Center of Phys. Med., Richmond (in affiliation with Richmond Prof. Inst.)	Walter J. Lee, M.D. Susanne Hirt	a-b-d-e g[4]	12 mo 4 yrs	Sept	Diploma Degree
WISCONSIN					
[1]Univ. of Wisconsin Med. School, Madison	Harry D. Bouman, M.D. Margaret Kohli	a-b-c-e-f g[4]	12 mo 4 yrs	Sept Sept-Feb	Certificate Cert. & Degree
U. S. ARMY MEDICAL SERVICE					
(a) Medical Field Service School, Brooke Army Medical Center, San Antonio, Texas, and	Charles D. Shields, Lt. Col., M.C. Agnes P. Snyder, Major, WMSC	b-e	12[2]	Mar-Sept	Certificate
(b) Fitzsimons Army Hospital, Denver, Colorado	H. B. Luscombe, Col., M.C. Harriet S. Lee, Major, WMSC	Completion of Medical Field Service School			
(c) Walter Reed Army Hospital, Washington	John H. Kuitert, Lt. Col., M.C. Brunetta Kuehlthau, Major, WMSC	Completion of Medical Field Service School			

Entrance Requirements

FOR ONE-YEAR COURSE

a = Graduation from accredited school of nursing.
b = Baccalaureate degree with major in physical education.
c = Two years of college with science courses.
d = Three years of college with science courses.
e = Baccalaureate degree with required science courses.

FOR TWO-YEAR COURSE

f = Two years of college with science courses.

FOR FOUR-YEAR COURSE

g = High school graduation.

Footnotes

[1]Male students admitted.

[2]12½-months' course includes training at the Medical Field Service School and Fitzsimons or Walter Reed Army Hospitals. Apply directly to the Surgeon General, Department of the Army, Washington 25, D. C.

[3]Additional college science credits required.

[4]Advanced standing students accepted.

Address initial correspondence to the School of Physical Therapy in the institutions listed. Tuition and fees will vary from school to school.

Meet Our New Contributors

Dorothy R. Hewitt, Instructor, Division of Physical Therapy, Stanford University. Miss Hewitt received her B.S. degree from Cortland State Teachers College, New York, and her master's degree from Stanford University. Her physical therapy certificate was awarded to her by Walter Reed General Hospital. She served in the Army for two years, after which she became an instructor at the Graduate Hospital School of Physical Therapy, University of Pennsylvania. From 1948-'49 Miss Hewitt worked with the Syracuse Cerebral Palsy and Handicapped Children's Association at Syracuse, New York, and in 1949 she accepted her present position at Stanford. She is a member of the American Registry of Physical Therapists and the American Physical Therapy Association.

Genevieve V. Reilly, Chief Physical Therapist, Kessler Institute for Rehabilitation, West Orange, N. J. Miss Reilly received training as a registered nurse at the Newark City Hospital School of Nursing. She has attended New York University and Seton Hall College. Miss Reilly received her physical therapy certificate from the Newark School of Physical Therapy. She worked with Dr. Winthrop Phelps' research program for two years, with Dr. Elmer P. Weigal in his private practice, and in 1949 she became associated with the Kessler Institute and organized its physical therapy department. Miss Reilly is a member of the American Nurses' Association, the American Registry of Physical Therapists and the American Physical Therapy Association. She has been the president and is currently the education committee chairman of the New Jersey chapter of the APTA.

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CHIEF PHYSICAL THERAPIST WANTED—for work with adults in a curative workshop. Good salary. Work week 40 hours, one day sick leave a month, 3 weeks vacation. Write Director, Ingham County Curative Workshop, 615 N. Capitol Ave., Lansing, Mich.

WANTED: QUALIFIED PHYSICAL THERAPIST. Assistant. Information on request. Write: Miss M. Hilliard, Director, Miriam Convalescent and Rehabilitation Hospital, 501 Bacon Street, St. Louis 19, Missouri.

WANTED: A qualified physical therapist for residential school for crippled children in Texas. Cerebral Palsy and Polio. Sept. 1 on nine mos. basis. Excellent working conditions. Address replies to Box 48, care of the Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

WANTED: Qualified physical therapist to work with experienced physical therapist in fully equipped department in 17-man clinic. Contact Mr. W. L. Nelson, Grand Forks Clinic, Grand Forks, North Dakota.

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It is requested that descriptive adjectives be used instead of actual figures when referring to salary.

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